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WOOL AND MANUFACTURES OF WOOL

MESSAGE OF THE PRESIDENT OF THE UNITED STATES

TRANSMITTING A

REPORT OF THE TARIFF BOARD ON SCHEDULE K OF THE TARIFF LAW

IN FOUR VOLUMES

VOLUME III (Parts 3 and 4)

Manufacturing Costs
Tops, Yarn, and Cloth
Ready-Made Clothing

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PART III.—MANUFACTURING COSTS.

SECTION 1.

MANUFACTURING COSTS.

EXTENT OF THE INVESTIGATION.

In the course of the wool and worsted inquiry agents of the board visited 188 different mills. In some of these, either on account of lack of cooperation on the part of the manufacturer or lack of system in accounting, it was impossible to secure results that were of practical use to the board.

In addition to these mills there were a number of others that were asked to give assistance and information, but who declined to permit agents of the board to visit them.

Verified information was obtained from 174 mills, and such information was taken by the agents themselves by personal visits. These establishments represent 20 States, as follows:

Connecticut, Delaware, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia, and Wisconsin.

It is from these 174 mills that the information was obtained from which the board has derived its conclusions as to cost of manufacture and labor efficiency in the United States. They are representative of the industry in this country, and comprise over two-thirds of its productive capacity. These mills run 46,280 looms, which is 64 per cent of all of the woolen and worsted looms in the country, and 70 per cent of those devoted to making woolen and worsted cloth. The figure of 70 per cent is obtained by eliminating from the total number of looms in the United States those devoted to the manufacture of blankets, felts, plushes, and the like.

The number of persons employed in the mills giving such information is 108,690, which is 64 per cent of the total number employed in the whole industry of the country. As in the matter of looms, this is 70 per cent of employees working on the commonly understood lines of woolen and worsted cloth.

These mills represent 1,900,636 producing spindles.

They range in size all the way from a 23-loom establishment to one containing 2,700 looms. In the number of employees the range is from 50 to 9,000.

Of the mills making yarn exclusively the range is from 4,400 spindles to 46,000 spindles.

A complete range as to size of the cloth-making mills visited is shown by the following division:

Mills under 50 looms	21
From 50 to 100 looms	48
From 100 to 200 looms	51
From 200 to 500 looms	24
From 500 to 1,000 looms	11
From 1,000 to 2,000 looms	7
Over 2,000 looms	4

WOOLEN AND WORSTED MILLS VISITED.

The following list gives the names of the mills from which information was secured by the agents of the board:

Ætna Mills, Watertown, Mass; Akers & Taylor Manufacturing Co., Charlton City, Mass.; Algonquin Co., Passaic, N. J.; American Mills Co., Rockville, Conn.; Amos Abbott Co., Dexter, Me.; Amoskeag Manufacturing Co., Manchester, N. H.; Anderson Mills, Skowhegan, Me.; Andrews Mill Co., Frankford, Pa.; Arlington Mills, Lawrence, Mass.; Assabet Mill, Maynard, Mass.; Assawaga Co., Killingly, Conn.; Atlantic Mills, Providence, R. I.

Ballardvale Mills Co., Ballardvale, Mass.; Beebee, Webber Co., Holyoke, Mass.; Beoli Mill, Fitchburg, Mass.; Berkshire Woolen & Worsted Co., Pittsfield, Mass. Blackinton Co., Blackinton, Mass.; Blumenthal, Sidney, & Co., Shelton, Conn.; Boehmann, F. A., & Co., Philadelphia; Botany Worsted Mill, Passaic, N. J.; Bound Brook Woolen Mills, Bound Brook, N. J.; Brighton Worsted Co., Philadelphia, Pa.; Brightwood Manufacturing Co., North Andover, Mass.; Broad Brook Co., Broad Brook, Conn.; Broadhead Worsted Mills, Jamestown, N. Y.; Brown's Sons, Geo., Mount Joy, Pa.; Burlington Mills, Winooski, Vt.

Caledonia Woolen Mills, Clifton Heights, Pa.; Capital City Woolen Mills, Des Moines, Iowa; Charlottesville Woolen Mills, Charlottesville, Va.; Cleveland Worsted Mills Co., Cleveland, Ohio; Clinton Woolen Manufacturing Co., Clinton, Mich.; Cocheco Woolen Manufacturing Co., East Rochester, N. H.; Collingwood Mills, Philadelphia, Pa.; Coronet Worsted Co., Mapleville, R. I.; Cowan Woolen Co., Lewiston, Me.; Crawford Woolen Co., Martinsburg, W. Va.; Crown Mills, Marcellus, N. Y.

Davis & Brown Woolen Co., Uxbridge, Mass.; Delaine Mills, Manayunk, Pa.; Dunn Worsted Mills, Woonsocket, R. I.; Dustin Island Woolen Mills, Penacook, N. H.

Elm Mills Woolen Co., Tilton, N. H.; Emerald Mills, Philadelphia, Pa.; Empire Worsted Mills, Jamestown, N. Y.; Erben-Harding Co., Philadelphia, Pa.

Falls City Woolen Mills, Louisville, Ky.; Farr Alpaca Co., Holyoke, Mass.; Faulkner & Colony Manufacturing Co., Keene, N. H.; Faulkner Woolen Mills, Stafford Springs, Conn.; Fern Rock Woolen Mills, Philadelphia, Pa.; Forstmann & Huffmann, Passaic, N. J.; Foxcroft Woolen Mills, Foxcroft, Me.; Franklin Mills, Franklin Falls, N. H.; French River Textile Co., Mechanicsville, Conn.; Fulton Mills, Fulton, N. Y.

Garfield Worsted Mills, Garfield, N. J.; Gera Mills, Passaic, N. J.; Germania Mills, Holyoke, Mass.; Gilbert, Geo. H., Manufacturing Co., Ware, Mass.; Glazier Manufacturing Co., South Glastonbury, Conn.; Gleason, A. D., Gleasondale, Mass.; Globe Woolen Co., Utica, N. Y.; Gonic Manufacturing Co., Gonic, N. H.; Goodall Worsted Co., Sanford, Me.; Granite State Mills, Guild, N. H.; Great Falls Woolen Co., Somersworth, N. H.; Greystone Mills, Greystone, R. I.; Groveland Mills, Groveland, Mass.; Grundy, Wm. H., & Co., Bristol, Pa.

Hadley Mills, South Hadley Falls, Mass.; Hall Bros., Preston, Conn.; Hampden Woolen Mills, Bristol, R. I.; Hetzel, Geo. C., Co., Chester, Pa.; Hillsboro Woolen Mills Co., Hillsboro Bridge, N. H.; Hockanum Mills Co., Rockville, Conn.; Holden-Leonard Co., Bennington, Vt.

Intervale Mills Corporation, Quinebaug, Conn.

Jacksonville Woolen Mills, Jacksonville, Ind.; Jamestown, Worsted Mills, Jamestown, N. Y.

Kent, Thos., Manufacturing Co., Clifton Heights, Pa.; Kiamensi Woolen Co., Stanton, Del.; Kunhardt, Geo. E., Lawrence, Mass.

La Porte Woolen Mills, La Porte, Ind.; Leominster Worsted Co., Leominster, Mass.; Lippitt Woolen Co., Woonsocket, R. I.; Lorraine Manufacturing Co., Pawtucket, R. I.

Mabbett, Geo., & Sons Co., Plymouth, Mass.; Madison Woolen Co., Madison, Me.; Maine Spinning Co., Skowhegan, Me.; Marland Mills, Andover, Mass.; Mayo Woolen Co., Millbury, Mass.; Merrimac Woolen Co., Lowell, Mass.; Middlesex Co., Lowell, Mass.; Milwaukee Worsted Mills, Milwaukee, Wis.; Moosup Mill, Moosup, Conn.

Namquit Worsted Co., Bristol, R. I.; National-Providence Worsted Mills, Providence, R. I.; Nemasket Worsted Mills, Middleboro, Mass.; New Jersey Worsted Spinning Co., Garfield, N. J.; North Adams Manufacturing Co., North Adams, Mass.; Norwalk Mills Co., Winnipauk, Conn.

Oakes, Thos., & Co., Bloomfield, N. J.; Oella Mills, Oella, Md.

Pacific Mills, Lawrence, Mass.; Park Mills, Philadelphia, Pa.; Peace Dale Manufacturing Co., Peace Dale, R. I.; Pentucket Mills, Haverhill, Mass.; Pequea Mills, Philadelphia, Pa.; Perseverance Worsted Co., Woonsocket, R. I.; Pioneer Woolen Mills, Pittsfield, Me.; Piscataquis Woolen Co., Guilford, Me.; Pocasset Worsted Co., Thornton, R. I.; Pontoosuc Woolen Manufacturing Co., Pittsfield, Mass.; Prendergast, Wm. H., Bridgeton, R. I.; Princeton Worsted Mills, Trenton, N. J.

Raritan Woolen Mills, Raritan, N. J.; Regar, N. K., Manufacturing Co., Philadelphia, Pa.; Reliance Worsted Co., Norwich, Conn.; Ricketts & Shaw, Monson, Mass.; Riverside Woolen Mills, Stafford, Conn.; Robertsford Worsted Mills, Fitchburg, Mass.; Rock Manufacturing Co., Rockville, Conn.; Rockville Worsted Co., Rockville, Conn.; Russell, S. N., & C., Manufacturing Co., Pittsfield, Mass.

Salts Textile Manufacturing Co., Norwalk, Conn.; Sawyer Mills, Dover, N. H.; Saxonville Mill, Saxonville, Mass.; Sayles & Jenks Manufacturing Co., Warren, Mass.; Schuster Woolen Co., East Douglas, Mass.; Scotia Worsted Mills, Woonsocket, R. I.; Selden Worsted Mills, Lawrence, Mass.; Shackamaxon Mills, Philadelphia, Pa.; Shelbourne Mills, Philadelphia, Pa.; Shetucket Worsted Mills, Baltic, Conn.; Shirreffs Worsted Co., Fitchburg, Mass.; Silesia Worsted Mills, North Chelmsford, Mass.; Slater, S., & Sons, Webster, Mass.; Smith, I. W., Woolen Co., Bridgeport, Pa.; Smith Woolen Co., Pittsfield, Me.; Somerset Manufacturing Co., Raritan, N. J.; Somerset Woolen Co., Monson, Mass.; Somersville Manufacturing Co , Somersville, Conn.; South Bend Woolen Co., South Bend, Ind.; Standish Worsted Co., Plymouth, Mass.; Star Worsted Co., Fitchburg, Mass.; Stevens Mill, North Andover, Mass.; Stirling Mills, Lowell, Mass.; Strong, Hewat & Co., North Adams, Mass.

Taconic Mills, Pittsfield, Mass.; Talbot Mills, North Billerica, Mass.; Talcott Bros., Talcottville, Conn.; Thornbury Worsted Mills, Bristol, Pa.; Tremont Worsted Co., Methuen, Mass.

United States Bunting Co., Lowell, Mass.; United States Worsted Co., Lawrence, Mass.; Uxbridge Worsted Co., Uxbridge, Mass.

Vassalboro Woolen Mills, North Vassalboro, Me.

Walworth Bros., Lawrence, Mass.; Wanskuck Co., Providence, R. I.; Warren Woolen Co., Stafford Springs, Conn.; Warrenton Woolen Co., Torrington, Conn.; Washington Mills, Lawrence, Mass.; Waterhouse & Howard, North Adams, Mass.; Waterloo Woolen Manufacturing Co., Waterloo, N.Y.; Waucantuck Mills, Uxbridge, Mass.; Waverly Woolen Co., Pittsfield, Me.; Webster Woolen Co., Sabattus, Me.; Western Worsted Mills, Milwaukee, Wis.; Woolen Manufacturing Co., Beaver Dam, Wis.; Wood Worsted Mill, Lawrence, Mass.; Worcester Woolen Mill Co., Worcester, Mass.

Yale Woolen Mills, Yale, Mich.; Yorkshire Worsted Mills, Lenni, Pa.

COMPENSATORY DUTIES.

The specific duties now levied on manufactures of wool are intended to compensate the American manufacturer for the enhancement in price of his raw material attributable to the duty on grease wool. In fixing the amount of this compensation it was assumed that 4 pounds of grease wool went into the making of a pound of cloth, and that three-fourths of the weight of the manufacturer's raw material was irrecoverably lost.

In a former section of this report has already been discussed the loss that occurs in the scouring process. It remains to point out the range of weight losses that occur in turning scoured wool into finished cloth. That these losses have a considerable range of variation not only from mill to mill, but also from time to time in the same mill, is due to three things. First, scoured wool varies somewhat both as to staple and as to its content of foreign matter, such as burs and seeds, that the scouring process does not remove. Second, the wastes made in successive processes vary both with the skill and efficiency of men and machines, and also with the business policy of the management. Some mills aiming at bulk and rapidity of production make more wastes than others that study economy of material rather than increase of output. That is, there may be more profit in saving labor cost than in saving material. In the third place, yarns or cloths of the same designation and description may differ widely in finish and excellence; and, as a rule, the higher the finish the severer have been the processes and the greater the loss of fiber. For example, to make 100 pounds of cloth of a certain name and description one manufacturer might use 110 pounds of yarn, while another would require 120 pounds. The cloth of the first maker would lack the perfection of finish shown by that of the second; and the higher price of the better cloth should normally compensate for the greater quantity of material consumed.

Tops are the first intermediary product between scoured wool and worsted cloth. The weight of a lot of tops varies normally between 80 per cent and 90 per cent of the weight of scoured wool used to make it. An output in tops of less than 80 per cent means that either the materials used or the methods applied are unusual; while an output of more than 90 per cent indicates rare skill and efficiency in the mill, together with a fortunate selection of wool. By far the greater part of the loss in weight is recovered in the form of noils, a much smaller part takes the form of card waste and comb waste; but the exact proportion of the noils to the other wastes varies somewhat with the character of the wool and the method of combing.

In the following table the figures in the first column are those of a typical spinning mill that turns out mainly the lower counts of yarn; those of the second column are for a mill making the higher counts; and those of the third column are for a well-equipped worsted cloth mill that makes its own yarn.

Top and noil production from greasy wool in three typical mills.

	Mill No. 1.	Mill No. 2.	Mill No. 3.
Scoured wool.....pounds..	6,860,629	5,529,144	2,462,069
Tops.....do....	5,759,701	4,851,690	2,123,123
Noils.....do....	1,001,350	612,776	181,374
Card and comb waste.....do...	99,279	64,678	157,572
Tops.....per cent..	83.95	87.75	86.24
Noils.....do....	14.60	11.08	7.36
Card and comb waste.....do....	1.45	1.17	6.40

It is apparent from this table that the average yield of tops over a considerable period differs in typical American mills by less than 5 per cent, and that the amount of this average yield is approximately 85 per cent. But a compensatory duty based on the average yield would be inadequate in the case of tops made from wool of fine quality; while, conversely, a compensatory duty high enough to take care of fine wool would be somewhat more than compensatory for tops made from the lower grades. This may be shown by the following comparison of the average yield of mill No. 1 above with the yield secured from different qualities of wool in the same mill.

	Average yield of mill.	Yield from wool counts, 64s-70s. Bradford system.	Yield from wool count, 60s. Bradford system.	Yield from wool count, 56s. Bradford system.	Yield from wool count, 50s. Bradford system.
Scoured wool.....pounds..	6,860,629	440,506	736,268	654,051	749,608
Tops.....do....	5,759,701	350,891	594,605	559,697	664,719
Noils.....do....	1,001,350	82,022	132,021	84,788	79,844
Card and comb waste.....do....	99,279	7,593	9,642	9,566	5,045
Tops.....per cent..	83.95	79.66	80.76	85.57	88.68
Noils.....do....	14.60	18.62	17.94	12.97	10.65
Card and comb waste.....do....	1.45	1.72	1.30	1.46	.67

Whatever may be the yield of scoured wool in tops, that part of it that is unfit for tops is by no means a complete loss to the manufacturer. Noils are worth quite regularly 60 per cent of the value of the scoured wool from which they are made, and they form from 60 per cent to 90 per cent of the wastes that accrue in top making. Comb waste is worth practically as much as scoured wool; card waste, as a rule, much less; the two together, forming from 5 per cent to 30 per cent of the total waste, should normally bring 40 per cent of the price of an equal weight of scoured wool. In any case the manufacturer recovers in the value of his wastes fully half the value of the scoured wool consumed that does not appear in his tops.

Assuming then that 100 pounds of fine wool gives 80 pounds of tops, the loss of 20 pounds reappears in the form of waste worth at least as much as 10 pounds of wool. The manufacturer therefore in this case is entitled to a compensatory duty on tops that exceeds the duty on wool by no more than 10 per cent of such duty. This is of course on the assumption that the compensatory duty shall be fixed entirely on a weight basis.

In the manufacture of worsted yarn, the next process after combing occurs in the drawing room, where, after gilling and drawing, the top reappears as roving. The weight of the roving varies between 95 per cent and 98 per cent of the weight of the tops. The loss in weight is almost but not quite accounted for in the weight of the slubbing and roving wastes, and these soft wastes, if still undyed, are worth approximately as much as tops and more than an equal weight of the scoured wool from which they are made. A fair compensatory duty on roving would therefore be almost imperceptibly higher than on tops.

In the transition from roving to finished yarn the material goes through the processes of spinning, twisting, winding, and spooling, and in each of these losses of fiber are involved. Small particles are rubbed away by friction, bits of fiber and of yarn are broken off by the strain of drawing and twisting, and a part of the loss consists of an intangible waste due to loss of moisture that is never recovered in any form. Such invisible waste is seldom less than 2 per cent of the weight of the tops. An additional waste of about 2½ per cent is recovered. It consists of the fluffy particles adhering to spindles and other machinery, of small broken ends of hard thread, and similar materials. These wastes are worth less than half as much as an equal weight of scoured wool.

If, then, we assume that, estimated on the weight of tops, soft wastes made in drawing and spinning equal 4 per cent, hard wastes in twisting, etc., equal 2½ per cent, and invisible wastes and shrinkage in all processes equal 2½ per cent, the yield of yarn from tops will equal 91 per cent.

These figures are borne out by the actual results shown in mill records. One successful American mill for the year 1910, using mainly fine Australian wool of qualities 60s. to 70s., made from 1,543,852 pounds of tops 1,440,128 pounds of yarn of average count 42s. This gives a yield of yarn from tops of 93.28 per cent. This mill estimates its average yield of yarn from tops year by year at approximately 92 per cent. Another successful mill, having a yarn output in 1910 of 2,696,488 pounds of average counts 20s., found its average yield of yarn from tops to be 90 per cent. Agents of the Tariff Board secured from the books of different mills 50 estimates of the yield of 2-ply yarn from tops. The highest yield thus shown was 97.1 per cent, which was very abnormal; the lowest was 86.58 per cent, which was likewise abnormal. Thirty-seven of the estimates showed a yield between 88 per cent and 93 per cent, 10 showed a yield slightly in excess of 93 per cent, and 3 showed a yield slightly under 88 per cent.

It appears, then, that the average yield of 100 pounds of tops is at least 91 pounds of yarn; 4 pounds of soft wastes and 2½ pounds of hard wastes are made, and 2½ pounds disappear as invisible waste or shrinkage. But since his soft wastes are worth 90 per cent as much as tops and his hard wastes 40 per cent as much as tops, the manufacturer recovers in their value half of the difference of 9 pounds between tops and yarn. It follows that in such a case a compensatory duty on yarn higher than that on tops by 4½ per cent of the compensatory top duty would be adequate. It should be noted, however, that such a rate would not be quite compensatory in the case of a lower yield, while it would be slightly more than compensatory when there is a greater yield. It should be further noted that the value of the wastes is reduced by nearly a half in the case of yarn made from dyed tops. Thus in the case of a yield of 88 per cent of colored yarn from dyed tops a compensatory duty on yarn higher than that on tops by 8 per cent of such duty would not be more than adequate.

The compensatory duty required on woolen yarn is less than that on worsted yarn. The intermediate product known as tops does not arise in the manufacture of woolen yarn; the wool passes direct from the cards to the spinning room. There are losses of fiber in the form of flyings, sweepings, strippings, and bur waste, and the small amount of waste made in spinning.

In the transition from yarn to cloth there is a wider range of losses in weight of material than in any other stage of manufacture. These losses may be grouped as follows:

1. Waste made in preparatory processes. In spooling, winding, twisting, and warping the yarn, preparatory to weaving, short pieces are broken off, which may be subsequently reduced to garnetted waste.

2. Weaving-room wastes. These consist of the first and last ends of the warp and of the weft yarn left on the bobbins after the piece is finished. The proportion of these to the whole weight varies, of course, with the length of the piece. Another weaving-room waste consists of cloth headings, bands a few inches wide and the full width of the warp, which are cut from both ends of each piece when more than one piece is woven on the same warp.

3. Finishing wastes. These consist of the very short particles that come off in the washing, fulling, napping, and shearing processes. They account for the greater part of the loss in weight of material in many fabrics and are the least valuable of the wastes.

4. Yarn remnants. These are the excess quantities of yarns over the exact amounts required to make a certain quantity of cloth. No manufacturer can tell precisely how much yarn will be needed to fill an order for a certain kind of cloth. If his estimate falls short of the amount required, he has to procure a second supply, and there is a strong probability that the character of this addition will differ sufficiently from his first supply to show in the cloth. It is necessary, therefore, for him to have on hand rather more than he thinks will

be needed to fill his order, which results in an excess. In staple piece-dyed goods this is an unimportant consideration, as nearly all such excess is usable at its first value; but in fancy goods made of many colors the loss from this cause is a considerable item.

The amount of all these wastes and their recoverable value differ greatly for different kinds of fabrics. Staple worsted goods woven from undyed yarns produce the least waste, fancy yarn-dyed worsteds produce more, and certain highly finished woolen fabrics show the greatest loss in weight. Some varieties of worsteds weigh within 6 per cent of the weight of the yarn that went into them, while some highly finished broadcloths, velours, and overcoatings fall short of the weight of the yarn by more than 25 per cent. The average loss would probably lie between 12 and 15 per cent.

Agents of the Tariff Board secured estimates based on mill records of the cloth made from 1,000 pounds of yarn in the case of 55 worsted and 40 woolen fabrics. The result may be tabulated as follows:

Yield of cloth from yarn.	Worsted fabrics.	Woolen fabrics.
95 per cent and over	6	9
90 per cent to 95 per cent	18	....
85 per cent to 90 per cent	26	12
80 per cent to 85 per cent	4	7
75 per cent to 80 per cent	....	6
Under 75 per cent	1	6
	55	40

The total recoverable value of the wastes in a weaving mill is difficult to estimate, for the reason that the wastes differ in value and the proportion of the amount of each to that of all the others varies with the different fabrics. The wastes enumerated above under groups 1 and 2 are worth approximately 20 per cent of the value of the yarn from which they are made. Yarn remnants are sold or utilized at from 10 per cent to 100 per cent of their cost. The finishing waste is nearly worthless; some of it is salable at 2 per cent or 3 per cent of the value of the yarn, much has to be carted away as dirt. Taken altogether it appears that the recoverable value of weaving-mill wastes would not be more than 15 per cent nor less than 5 per cent, with a probable average of 10 per cent, of the value of the yarn from which they were made.

If, then, it is desired to compensate the manufacturer of the heaviest shrinking woolen fabrics mentioned above, the compensatory duty must be as much as 20 per cent of the compensatory duty on yarn higher than that duty. On the other hand, there are certain fabrics for which a fair compensatory duty would exceed the compensatory yarn duty by less than 5 per cent.

If it is assumed that the purpose of compensatory duties is to make good the waste of fiber that arises in turning out products involving the greatest loss, the following examples would illustrate the working of the principles set forth above:

If the duty on the scoured content of wool is $0.15 a pound—

The compensatory duty on tops equals $0.15 plus 10 per cent of $0.15 equals $0.1650.

The compensatory duty on yarn equals $0.1650 plus 8 per cent of $0.1650 equals $0.1782.

The compensatory duty on cloth equals $0.1782 plus 20 per cent of $0.1782 equals $0.2138.

If the duty on the scoured content of wool is $0.18 a pound—

The compensatory duty on tops equals $0.18 plus 10 per cent of $0.18 equals $0.1980.

The compensatory duty on yarn equals $0.1980 plus 8 per cent of $0.1980 equals $0.2138.

The compensatory duty on cloth equals $0.2138 plus 20 per cent of $0.2138 equals $0.2566.

If the duty on the scoured content of wool is $0.19 a pound—

The compensatory duty on tops equals $0.19 plus 10 per cent of $0.19 equals $0.2090.

The compensatory duty on yarn equals $0.2090 plus 8 per cent of $0.2090 equals $0.2257.

The compensatory duty on cloth equals $0.2257 plus 20 per cent of $0.2257 equals $0.2708.

If the duty on the scoured content of wool is $0.20 a pound—

The compensatory duty on tops equals $0.20 plus 10 per cent of $0.20 equals $0.22.

The compensatory duty on yarn equals $0.22 plus 8 per cent of $0.22 equals $0.2376.

The compensatory duty on cloth equals $0.2376 plus 20 per cent of $0.2376 equals $0.2851.

If the duty on the scoured content of wool is $0.25 a pound—

The compensatory duty on tops equals $0.25 plus 10 per cent of $0.25 equals $0.2750.

The compensatory duty on yarn equals $0.2750 plus 8 per cent of $0.2750 equals $0.2970.

The compensatory duty on cloth equals $0.2970 plus 20 per cent of $0.2970 equals $0.3564.

What has been said above applies to fabrics made wholly of wool. Much cloth, however, is designated as woolen or worsted that contains other materials than wool. To fix a fair compensatory duty on such cloth is a matter of difficulty, by reason of the varying proportions of the elements that compose it and the impossibility of ascertaining that proportion. Goods made with a cotton warp and wool weft may be easily recognized and rated; but it frequently happens that both warp and weft contain more or less of cheaper materials. There are, of course, well known and simple tests for discovering the cotton content of a fabric, but their application to imported cloths in the custom house would involve considerable difficulties. Moreover, there is no test known that will disclose the proportion of noils, shoddy, mungo, etc., to new wool in many varieties of fabrics. Difficulties of this kind, however, could be partly overcome by graduating the compensatory duty according to the value of the fabric.

METHOD OF INQUIRY INTO COST OF MANUFACTURE.

The problem which confronted the Tariff Board at the outset of the inquiry into the cost of manufacturing in the woolen and worsted industry was how to find some method of arriving at the cost of any particular article, in view of the fact that each mill turns out such a great variety of products. The difficulty can perhaps be best understood by comparing this inquiry with that on the pulp and paper industry regarding which the board made a report in May of this year.

In the case of news print paper there is a standard product produced in a practically uniform quality by all mills and, to a very large extent, constituting the sole product of the mill. The problem then reduced itself to getting the actual cost expenditures for a given period and the actual total output of the mill in tons. Whatever analysis might be made of the expenditures by processes or according to the different elements of cost, the total cost per ton could always be secured by dividing the total cost by total product. If a worsted mill, for example, always made simply one kind of cloth of exactly the same construction, pattern, and finish, the cost of that particular cloth could be secured at that mill in the same way.

It is, however, impossible to say anything about the cost of cloth per yard without specifically and carefully defining the exact nature of the cloth. There are no absolute standards in the cloth trade, and each mill turns out a great variety of different fabrics; and to divide the total cost of the year by the total number of yards would of course give no result of any value. It would not be the cost of any particular cloth but the average cost of the great variety of cloths, and this would be utterly incomparable with any other mill unless it made exactly the same varieties in exactly the same proportions, which, of course, never occurs.

The question then arose whether or not it would be possible to get results by a study of processes, so that some definite expression might be made as to the cost of each process in manufacturing, from the wool to the finished cloth. In preliminary lines of manufacture this was found to be possible in a certain measure. For example, in the case of the manufacture of tops it was possible to get actual figures per pound of tops on the definite processes of sorting, scouring, carding, and combing. The trouble, however, is that tops vary greatly in quality and that costs vary according to the quality. In no establishment is a single quality of tops produced. The result is that a statement of costs based on total output might be misleading, since it would not represent any actual grade produced. The quality of the tops depends upon the quality of the wool of which it is made. The speed of the machinery has to be adjusted to the quality of the wool fiber and the variations in combing costs per pound depend largely upon the speed of the comb and the consequent output.

Experience has shown, roughly at least, the relative output for different grades of wool and the manufacturer can determine in some degree what proportion of his cost is properly to be apportioned to each grade of tops produced.

The same is also true of worsted yarns. It is true that no mill produces a single kind of yarn, and consequently an average cost based upon total output in pounds and total expenses would be of less value than an exact cost for yarn of a single count. The spinner, however, like the comber, has learned from experience a fairly accurate method of prorating his expenses to the different grades of yarn spun.

Some of the difficulties in determining the cost of yarn produced will be explained more fully below, where that subject is discussed. It may be merely said here that the two main causes of variation in, say, two-ply worsted yarn are, first, the quality of the wool or tops from which it is made; secondly, the size or count of the yarn. The finer the yarn is spun—that is, the higher the count—the greater the cost. The reason, of course, is that the production, in pounds, in a given time diminishes as the size of the yarn diminishes. Here, again, the manufacturer has been able to learn from experience in what proportion the production falls off and the labor cost increases with this variation in size, and he can consequently prorate his labor and other charges with some degree of accuracy, according to the variation in counts.

It is therefore possible to take the actual cost of a product for a given period according to the particular quality of yarn, and thereby arrive at a conclusion regarding the cost of a specific product in each separate process of drawing, spinning, twisting, spooling, reeling, etc. Consequently this method was adopted, where possible, and combined with other methods, as explained more fully in the section on yarns. Records were secured by members of the board or by its agents, taken actually from the books, on worsted-yarn spinning for certain companies, showing range of counts produced, total actual expenditures by processes, general-expense schedules, etc.

In the case of woolen and worsted cloths it became clear that no such method was possible. There are not standard grades of cloth, as there are of yarn, and to compare the total cost with total output of a mill would be utterly meaningless. Certain results were secured as to the weaving cost by taking the total weaver's wages for a given period and comparing them with the total number of picks woven in the total output for the same period. This gave a weaving cost per pick, but did not cover the essential facts as to the cost of any particular fabric. Obviously any general average as to mending and burling, wet or dry finishing, dyeing, etc., would have meant nothing at all, as the cost of these processes depends entirely upon the character of the specific cloth manufactured.

The only method available was to start with certain specific cloths and get the most accurate estimates possible from a number of different mills on the cost of making goods of this quality. The difficulty here lay in the well-known fact that estimates on the same sample by different manufacturers may vary very widely, and experience in this regard by associations in the trade who have attempted to arrive at some standard cost method showed the necessity for adopting every precaution to make these figures as detailed, accurate, and fair as possible.

In the first place, the question of raw material was eliminated altogether, since this is such a fluctuating element, and an arbitrary price was assumed for different qualities of wool and yarn, this arbitrary price being the actual price so far as it could be accurately determined for a given date. Schedules were then carefully prepared providing for a detailed analysis of the cost of a given fabric according to each separate process of yarn dyeing, warp sizing, spooling, winding, doubling and twisting, dressing, weaving, burling, mending, remending, specking, etc., wet finishing, piece dyeing, dry finishing, and inspecting. Under each process the expenses were divided into "direct labor" and "indirect labor" and "department materials." To these was added a "general expense" schedule covering all overhead and fixed charges for a period of 12 months. The total wages were also entered for the same period and the rule established that general expense should be prorated according to the amount ot productive labor. This method, although not uniformly adopted in the trade, is recognized as fair and equitable, and it was necessary to have a common basis for the distribution of the general expense, so that the returns from the mills should be comparable in this regard.

Our agents then visited the mills with specific samples and worked out with the proper officials the cost under each separate process. In practically all cases they were given complete access to the books in order to see by what method particular charges were made, and to satisfy themselves that the estimated costs entered were based upon the actual costs at the mill. By this detailed analysis by processes the estimates came as near to the actual costs as the mill itself was able to make them.

It should be borne in mind that the method here adopted is the method of the manufacturer himself when he wishes to find the cost of any fabric. That is, he submits it to his designer, who figures out what it will cost to make it in his mill, and on these figures he takes orders. On this basis he sends out samples of designs or fabrics to solicit business at a price fixed by costs ascertained in precisely this way.

In all cases we secured the cost of production at the mill actually producing the sample as shown by its own records on that particular cut of cloth.

These schedules when brought to the office were very carefully scrutinized in each detail and wherever discrepancies appeared, or charges which seemed inaccurate, the matter was taken up by correspondence, and if an understanding was not reached in this way the agent was sent back to the mill to go over the matter again. In the cases where the data were insufficient to meet the requirements of the investigation, or were obviously abnormal in character, these were disregarded entirely by the board in making the final computations.

The "general-expense" schedules were carefully edited to bring them to a common basis and to eliminate all items not properly chargeable to costs. In all cases the item of "interest on capital" was eliminated as not being properly so chargeable.

The item of depreciation was naturally a very variable one, and an allowance was made of 2½ per cent on buildings and 7 per cent on equipment, including obsoletion. The question of a fair valuation of the mill could, in many cases, not be determined accurately, and in such cases it was necessary to assume a certain standard valuation based on the number of cards, looms, etc. As a matter of fact, the allowance for depreciation made by the board was, in general, slightly in excess of that actually charged; but the practices of the mills regarding depreciation are, at the best, as crude as they are varied. In any case, such discrepancies as would appear in different cases would be an almost inconsiderable item per yard of cloth.

Returns were also received from many mills giving the total output for the year of each variety of fabrics, with the number of picks per inch and the total number of picks woven during the year, in order to determine, if possible, the average labor cost per woven pick.

At the same time similar schedules were prepared on which estimates were secured for the manufacture of yarn in a given sample, and, in the case of worsted fabrics, for the manufacture of tops as well. These were made out according to the same method as to giving details by processes, and the general expense schedule for the whole establishment was used for prorating overhead charges on tops and yarns according to productive labor. These schedules, however, were supplementary to the actual production figures already referred to, and are explained more fully in the section on yarns.

THE SECURING OF FOREIGN COSTS.

The method adopted in securing foreign costs on American samples was similar to that used in this country. Samples of identical fabrics cut from the same piece were taken to England and to the Continent. These were shown to a number of manufacturers and their estimates on the cost of production secured, but not in the same detail as in American mills, because foreign manufacturers do not keep their costs in any such detail.

In England the costings on these samples are given with the authority of a cloth expert, himself a manufacturer, who took the English estimates secured and corrected or verified them from his own experience or from the costs in his own mill. They are believed to be bedrock figures, and were calculated on the basis of mills of high efficiency, using, whenever the construction of a fabric permitted, high-speed looms.

The English costs correspond closely with French costs on the same samples obtained through other channels entirely. The weaving rates on samples were obtained in France through still other channels than were the cost-of-production figures, which also show weaving rates on the individual sample. These were checked against each other and against the English weaving rates on the high-speed looms, with results most reassuring as to the substantial accuracy of both.

German costs were secured on similar cloths. In no case did a German manufacturer figure on the cost of producing an American fabric. What they did was to select cloths made by themselves which, from the loom analysis submitted, came very near the sample fabric, and their costs were secured in such detail as their methods of bookkeeping permitted.

The weavers' rates upon each of the American sample fabrics were secured in the cloth centers of Germany, France, and Belgium from weavers who were making similar cloths at the loom, or from the rate commissioners who in conference arrange between employer and employee what the weaving rate on cloths shall be. The actual weavers' scales were secured from various sources, sometimes from establishments' scales, sometimes from district wage agreements signed by representatives of organizations. In every case, rates were as thoroughly verified as possible by checking up one source of information against another.

In the case of German goods, sample cloths were secured from the mill making them; and costs were taken from their books, including the weaver's rate on the identical bolt from which the sample was cut. The loom analyses of these fabrics were secured, and the samples brought to the United States and submitted for costings to American mills.

The difficulties in the way of securing accurate data on identical fabrics, or of knowing whether two fabrics are sufficiently similar to permit of comparison, has already been mentioned. This, however, does not apply so severely to the single element of weaving rate, and the weaving rate is the best and safest gauge of conversion costs; hence the board has paid especial attention to this element.

Since costs vary widely from mill to mill, any single figure as to the cost of a fabric must be taken with caution. The essential thing, however, for this inquiry is the *ratio* of foreign to home costs. The very large amount of domestic and foreign cost data received from so many different and independent sources by different agents check so closely with each other that the board feels that this essential point of the *ratio* has been accurately determined.

THE SCHEDULES USED.

Copies of the schedules used are herewith submitted, so that the true nature of the investigation may be understood.

[Confidential. Identification No. ......]

THE TARIFF BOARD.

WOOLEN AND WORSTED INDUSTRY.

SCHEDULE 1.—*General information.*

1. Name and address of firm or corporation..
2. Name and location of mill..
3. Number of persons employed when mill is running full..
4. Equipment of mill:
   - *a.* Number of sets of cards..
   - *b.* Number of combs..
   - *c.* Number of spindles..
   - *d.* Number of looms: Broad...................., narrow..........................
5. Have you made cloth of same construction?..
6. Have you made cloth of similar construction?..

....

Remarks:..

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....,
Representative.

Data secured.........................., 191

The undersigned certifies that the figures and data given on the accompanying sheets (marked Schedules 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11) are taken from the books of accounting of the above-named firm, in so far as they appear thereon, and are accurate and correct to the best of my knowledge and belief.

....

....
(Official position with the company or firm.)

SCHEDULE 2.—*Top making.*

A. COST OF STOCK ENTERING MANUFACTURE OF 1,000 POUNDS OF TOPS.

	Pounds.	Price per pound.	Date.	Total cost.	Cost per pound of tops.
Raw wool:					
....	....	....	....	....	......
....	....	....	....	....	......
....	....	....	....	....	......
Other stock:					
....	....	....	....	....	......
....	....	....	....	....	......
....	....	....	....	....	......
....	....	....	....	....	......
Gross total..............	....	....	....	....	......
Less credit noils Less credit waste} Total..............	....	....	....	....	......
Net total..............	....	....	....	....	......

SCHEDULE 2.—*Top making*—Continued.

B. CONVERSION COST OF 1,000 POUNDS OF TOPS.

	Pounds of material entering each process.	Productive or direct labor.[1]	Nonproductive or indirect labor.[2]	Department materials.[3]	Total cost.	Cost per pound of tops.
Sorting and blending						
Scouring						
Carding						
Combing						
Dyeing						
General expense [4]						
Total conversion cost						
Cost of stock						
Total manufacturing cost						

[1] Actual labor applied directly to stock in its conversion, including proportion of wages paid to second hands and subforemen properly chargeable to each department.
[2] Indirect labor employed in department, including overseers, foremen, carriers, etc., but not including general and repair labor, which are provided for under general expense.
[3] Materials other than stock used in department, for example, soap for scouring, oil for oiling stock, dyes and chemicals for dyeing, etc.
[4] See general expense schedule.

Remarks:

SCHEDULE 3.—*Worsted yarn spinning (1,000 pounds), No.* ———.

A. COST OF STOCK.

Pounds tops required for manufacture of 1,000 pounds yarn
Price of tops (if purchased) per pound at ...., 1911
Cost of tops per pound (if made at spinning mill)

Total cost of tops

B. CONVERSION COST.

	Pounds of material entering each process.	Productive or direct labor.[1]	Nonproductive or indirect labor.[2]	Department materials.[3]	Total cost.	Cost per pound of yarn.
Drawing						
Spinning						
Twisting						
Reeling						
Spooling						
Warping						
General expense [4]						
Total conversion cost						
Cost of stock						
Less credit waste						
Net manufacturing cost						

[1] Actual labor applied directly to stock in its conversion, including proportion of wages paid to second hands and subforemen properly chargeable to each department.
[2] Indirect labor employed in department, including overseers, foremen, carriers, etc., but not including general and repair labor, which are provided for under general expense.
[3] Materials other than stock, used in department, for example, soap for scouring, oil for oiling stock, dyes, and chemicals for dyeing, etc.
[4] See general expense schedule.

SCHEDULE 4.—*Worsted cloth making (1,000 yards).*

A. GENERAL.

Date of calculation........................ ....
Name of cloth................................ ....
Number of warp ends to 1 inch. ....
Number of picks to 1 inch........ ....
Width in reed................................ ....
Length of warp.............................. ....
Length of cloth woven................ ....
Length of take-up.......................... ....
Length of goods finished.......... ....
Width of goods finished............ ....
Net total take-up........................ ....
Pounds of cloth to 1,000 pounds of yarn.. ....
Weight of cloth per yard............ ....
Pounds of cloth to 1,000 yards. ....

B. COST OF STOCK.

	Kind of yarn.	Plain, mixed, or colored.	Count of yarn.	Pounds.	Cost or price of yarn per pound.[1]	Total cost.	Cost per yard cloth.
Warp:							
..............................ends..	....	....	....	....	....	....	....
..............................ends..	....	....	....	....	....	....	....
..............................ends..	....	....	....	....	....	....	....
..............................ends..	....	....	....	....	....	....	....
..............................ends..	Waste..%	....	....	....	....	....	....
Weft:							
..............................picks..	....	....	....	....	....	....	....
..............................picks..	....	....	....	....	....	....	....
..............................picks..	....	....	....	....	....	....	....
..............................picks..	....	....	....	....	....	....	....
..............................picks..	Waste..%	....	....	....	....	....	....
Total stock..............................	....	....	....	....	....	....	....

[1] Give actual cost of manufacture of yarn, if making your own yarn. If yarn is purchased, give price of yarn and date when purchased.

C. CONVERSION COST.

	Productive or direct labor.[1]	Nonproductive or indirect labor.[2]	Department materials.[3]	Total cost for —— yards.	Cost per yard.
Yarn dyeing..............................	....	....	....	....	....
Warp sizing..............................	....	....	....	....	....
Spooling..............................	....	....	....	....	....
Winding..............................	....	....	....	....	....
Doubling and twisting..............................	....	....	....	....	....
Dressing (including drawing-in)..............................	....	....	....	....	....
Weaving (weaver's rate at —— per ——)..............................	....	....	....	....	....
Burling..............................	....	....	....	....	....
Mending..............................	....	....	....	....	....
Remending, specking, etc..............................	....	....	....	....	....
Wet finishing..............................	....	....	....	....	....
Piece dyeing..............................	....	....	....	....	....
Dry finishing and inspecting (cost of putting up and selling expense not included)..............................	....	....	....	....	....
General expense[4]..............................	....	....	....	....	....
Total conversion cost..............................	....	....	....	....	....
Cost of stock..............................	....	....	....	....	....
Less credit waste..............................	....	....	....	....	....
Net manufacturing cost..............................	....	....	....	....	....

[1] Actual labor applied directly to stock in its conversion, including proportion of wages paid to second hands and subforemen properly chargeable to each department.

[2] Indirect labor employed in department, including overseers, foremen, carriers, etc., but not including general and repair labor, which are provided for under general expense.

[3] Materials other than stock used in department; for example, soap for scouring, oil for oiling stock, dyes and chemicals for dyeing, etc.

[4] See general expense schedule.

SCHEDULE 5.—*Woolen yarn making (1,000 pounds), No.* ....

A. COST OF STOCK.

	Pounds.	Price per pound.	Date.	Total cost.	Cost per pound of yarn.
Wool:					
Noils					
Shoddy					
Other stock:					
Total					
Less credit waste					
Net cost					

B. COST OF CONVERSION.

	Pounds of material entering each process.	Productive or direct labor.[1]	Nonproductive or indirect labor.[2]	Departmentmaterials.[3]	Total cost.	Cost per pound of yarn.
Sorting						
Scouring						
Stock dyeing						
Mixing and picking						
Carding						
Spinning						
Doubling						
Twisting						
Spooling						
General expense[4]						
Total conversion cost						
Cost of stock						
Total manufacturing cost						

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[1] Actual labor applied directly to stock in its conversion, including proportion of wages paid to second hands and subforemen properly chargeable to each department.

[2] Indirect labor employed in department, including overseers, foremen, carriers, etc., but not including general and repair labor, which are provided for under general expense.

[3] Materials other than stock used in department; for example, soap for scouring, oil for oiling stock, dyes and chemicals for dyeing, etc.

[4] See general expense schedule.

Remarks: ....

....

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....

....

SCHEDULE 6.—*Woolen cloth making (1,000 yards).*

A. GENERAL.

Date of calculation ....
Name of cloth ....
Number of warp ends to 1 inch ....
Number of picks to 1 inch ....
Width in reed ....
Length of warp ....
Length of cloth woven ....

Length of take-up ....
Length of goods finished ....
Width of goods finished ....
Net total take-up ....
Pounds of cloth to 1,000 pounds of yarn ....
Weight of cloth per yard ....
Pounds of cloth to 1,000 yards. ....

B. COST OF STOCK.

	Kind of yarn.	Plain, mixed, or colored.	No. yarn.	Pounds.	Cost or price of yarn per pound.[1]	Total cost.	Cost per yard cloth.
Warp:							
..........ends							
..........ends							
..........ends							
..........ends							
..........ends	Waste..%						
Weft:							
..........picks							
..........picks							
..........picks							
..........picks							
..........picks	Waste..%						
Total stock							

[1] Give actual cost of manufacture of yarn, if making your own yarn. If yarn is purchased, give price of yarn and date when purchased.

C. CONVERSION COST.

	Productive or direct labor.[1]	Non-productive or indirect labor.[2]	Department materials.[3]	Total cost for —— yards.	Cost per yard.
Yarn dyeing					
Doubling and twisting					
Spooling					
Winding					
Dressing (including drawing in)					
Warp sizing					
Weaving (weaver's rate at —— per ——)					
Burling					
Mending					
Remending, specking, etc					
Wet finishing					
Piece dyeing					
Dry finishing and inspecting (cost of putting up and selling expense not included)					
General expense [4]					
Total conversion cost					
Cost of stock					
Less credit waste					
Net manufacturing cost					

[1] Actual labor applied directly to stock in its conversion, including proportion of wages paid to second hands and subforemen properly chargeable to each department.

[2] Indirect labor employed in department, including overseers, foremen, carriers, etc., but not including general and repair labor, which are provided for under general expense.

[3] Materials other than stock used in department; for example, soap for scouring, oil for oiling stock, dyes and chemicals for dyeing, etc.

[4] See general expense schedule.

SCHEDULE 7.—*General expense.*

NOTE.—All items of expense are to be given for mill property only, not including tenements.

A. WORKS EXPENSE.

1. Administrative expense chargeable to manufacture:		
a. Salaries, executive	$........	
b. Salaries, clerical	....	
c. Salaries, superintendence	....	
Total		$........
2. Designing and pattern making		....
3. General labor—engineer, firemen, warehousemen, yard, and watch, etc.		....
4. Miscellaneous operating expenses, such as office supplies, telegrams, sundries:		
....	$........	
....	....	
....	....	
Total		....
5. Fuel:		
Coal	$........	
Wood	....	
Other	....	
Total		....
6. Power and light purchased from outside		....
7. Water purchased		....
8. Repairs and maintenance:		
Materials	$........	
Labor	....	
Total		....
9. Accident or liability insurance		....
10. Hauling and stable (current expense)		....
11. Other expenses:		
....		....
....		....
....		....
Total works expense (1 to 11)		....

B. FIXED CHARGES.

1. Insurance:		
Fire	$........	
Other	....	
....	....	
....	....	
Total		$........
2. Taxes on mill property		....
Business or corporation taxes		....
3. Depreciation:		
a. Original cost of mill buildings (not including land)	$........	
Annual depreciation rate, —— per cent.		
Amount of annual depreciation of buildings	$........	
b. Original cost of machinery and equipment	$........	
Annual depreciation rate, —— per cent.		
Amount of annual depreciation and obsoletion of machinery and equipment	$........	
Total depreciation	....	....
Total fixed charges (1 to 3)		....
Total general expenses (A plus B)		....

Total amount paid out in wages during the fiscal year ending.................... 19—, $..........

Give the wages for the busiest year during the last five years.

Remarks: ....

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SCHEDULE 8.—*Pay roll, year ending ——— ———, 191—.*

Departments.	Wages paid for—			Department materials.
	Productive labor.	Nonproductive labor.	Total labor.	
Sorting and blending				
Scouring				
Mixing and picking				
Carding				
Combing				
Dyeing				
Spinning				
Twisting				
Doubling and twisting				
Reeling and winding				
Spooling				
Examining and packing yarns				
Warping				
Warp sizing				
Dressing (including drawing-in)				
Weaving				
Burling				
Mending				
Remending, specking, etc				
Wet finishing				
Dry finishing and inspecting (excluding labor of putting up)				
Total				
Total nonproductive labor per Schedule 7				
Total wages				

SCHEDULE 9.—*Total production, year ending ——— ———, 191—.*

A. YARN PRODUCED.

1. Quantity of yarn on hand at inventory, beginning of year..pounds.. ....
2. Quantity of yarn on hand at inventory, end of year........pounds.. ....
3. Quantity of yarn produced................................pounds.. ....
4. Quantity of yarn turned over to weaving department.......pounds.. ....
5. Quantity of yarn sold....................................pounds.. ....
6. Quantity of yarn purchased...............................pounds.. ....

Total number of hours spinning mill was in operation during the period, ...

Remarks: ....
....
....
....
....

B. CLOTH PRODUCED YEAR ENDING ——— ———, 191—.

Total number of hours weaving mill was in operation during the period ———.

Name of cloth.	Size yarn in warp.	Size yarn in weft.	Warp ends to inch at loom.	Number of picks to inch at loom.	Width finished (inches).	Weight per yard (ounces).	Total yards produced.

SCHEDULE 10.—*Equipment and maintenance.*

Operation.	Number of machines.	Maker.	Year built.	How long in use.	Cost installed, including pulleys, belting, and shafting.	Cost of fixtures and miscellaneous equipment.	Repairs, maintenance, and supplies, year ending ——, 191—.
Sorting							
Dusting							
Scouring							
Dyeing							
Mixing and picking							
Carding							
Spinning							
Doubling and twisting							
Spooling							
Winding							
Dressing and warp sizing							
Weaving							
Wet and dry finishing							
Miscellaneous							

SCHEDULE 11.—*Equipment and maintenance.*

Operation.	Number of machines.	Maker.	Year built.	How long in use.	Cost installed, including pulleys, belting, and shafting.	Cost of fixtures and miscellaneous equipment.	Repairs, maintenance, and supplies, year ending ——, 191—.
Sorting and blending							
Dusting and scouring							
Carding							
Combing							
Dyeing							
Drawing							
Spinning							
Twisting							
Reeling							
Spooling							
Warping							
Warp sizing							
Winding							
Doubling and twisting							
Dressing							
Weaving							
Wet and dry finishing							
Miscellaneous							

THE COST OF MAKING TOPS.

By the cost of making tops we mean the cost of combing wool into tops, together with the subsidiary processes. Strictly speaking, the phrase "top making" is frequently taken in a different sense in the trade. A top maker is properly a merchant and not a manufacturer. He purchases raw wool and sells tops to worsted spinners. He may have a plant of his own for combing this wool, or he may have the actual combing done on commission by somebody else.

If the term "top maker" be understood in this sense, it is obviously impossible to make any statement as to the cost of top making. The expense of the top maker lies first in his office expenses, freight, selling expenses, etc.; secondly, in the cost of sorting the wool to secure the qualities and grades which will insure the quality of tops desired by the customer; third, in his loss on off-sorts, which however would properly be a charge against the cost of material. Therefore, the only item regarding which any comparable rate could be secured would be that of sorting.

The problem here, however, has to do with the manufacturing end rather than the mercantile end. In foreign countries wool combing is done very largely on commission and there are great establishments whose sole business is the turning of the wool for their customers into tops and noils for a given fixed charge. The customer furnishes the wool and receives back the tops, noils, and waste. This is also done to a certain extent in this country, although the more general practice is for worsted spinners to make their own tops.

In comparing costs it is necessary to keep this distinction in mind, as there are certain costs which inhere in the one method and not in the other. The commission comber ordinarily has no expense for sorting, as the wool is sent to him in a sorted condition. In case his customer wishes him to do the sorting as well, he makes an extra charge for this not included in the ordinary rate. He has no loss on off-sorts or waste, they falling entirely upon the customer. Nor, for the same reason, has he any interest charge on carrying the wool. Also, he has no selling charges. It is important to note these facts, since it would be incorrect to take the charges for commission combing as identical with the actual total cost of turning raw wool into tops.

On the other hand, the commission rate for combing would, under normal conditions, cover not only interest on the plant, but whatever profit the comber is able to make besides. To a certain extent the interest and profit of the commission comber may be taken to offset the greater expense of the spinner who makes his own tops, so that the commission rate would approximate the actual net cost of the manufacturer who carried all the processes through in his own establishment.

Where the manufacturer makes tops for his own use he has heavier warehouse charges and the expense of sorting the wool as a part of his costs. He further either requires additional working capital to carry large stocks of wool over the necessary period or must pay interest on current loans for this purpose. On the other hand, in attempting to arrive at the net cost of the manufacturer no interest on the plant and, still more, no profit is included. In our consideration of the cost of making tops we also exclude in all cases any loss on offsorts in sorting or waste in manufacture. These are not strictly a part of the actual manufacturing costs, but are properly credited to the cost of materials.

The cost of turning wool into tops varies materially with the character of the wool. Finer wools require more careful treatment in scouring and necessitate also a slower speed of the machinery, thereby reducing the output. For this reason it is difficult to tabulate figures giving an average which can be taken as representative, since the variation in the qualities of tops made is so great. The same mill will regularly make tops of different grades at the same time and can determine for itself the actual cost of each particular grade only by a somewhat rough method.

Furthermore, the cost per pound of tops will vary according to the relative proportion of tops and noils secured from the process. The scale for commission combing in Bradford, England, differentiates its charges according to the percentage of the units. For instance, the charge for combing merino wools above 56s. quality is 4½ cents per pound where the proportion of tops to noils is 5 to 1 or over. The charge, then, increases as the proportion of noils increases. In general, however, the proportion of noils is seldom greater than 1 to 5, and this may be taken as the regular commission charge for fine quality wools. On 56s. quality for "carding crossbreds" corresponding to our one-half blood the charge is 3¾ cents; for 50s., corresponding to three-eighths blood, 3½ cents; for 36s. to 46s., equivalent to our low one-quarter blood, the charge is 3 cents; and for low grade prepared, but not carded, the rate is 2¼ or 2½ cents.

There is no standard scale for commission combing in this country. The following, however, may be taken as representative charges: Unwashed Territory wools, half blood or above, 7½ cents a pound; Australian half blood and merino wools, not finer than 70s. quality, and domestic wools, half blood or above, 7 cents per pound; high-quarter blood to half blood, 6 cents (an extra charge is made on unwashed Territory wools); high-quarter blood, 5½ cents; quarter-blood and common combing wools, 5 cents.

It will be seen that the lowest charge in the United States is about double the lowest charge in England. On the finer qualities the difference in the charge is not so great, it being from 65 to 55 per cent more as the fineness increases.

Our investigations here and abroad lead to the conclusion that the difference in these commission charges is fully offset by the difference in cost of production. Our study of the cost of making fine-quality tops at many mills in this country would indicate that the commission charge of 7 cents would allow a profit only when the combs are running full time. Domestic mills doing both a commission business and a business on their own account seem often to do commission combing, merely to keep all their machinery going, at a rate not profitable for a purely combing establishment.

In attempting to arrive at the cost of tops from a consideration of actual mill records for a given period of time, we have found the widest divergencies due to the difference in output. For a six-months period in one mill the average cost of production for all tops was only 4.28 cents per pound, while for another six-months period in the same mill running upon practically the same quality of tops the actual average cost was 9.37 cents a pound. In the first period, however, the output was about three and one-half times the output in the second period. In the first case the mill was running overtime and in the second case much of the machinery was idle, while the fixed and overhead charges continued the same. In view of the fluctuations due to such causes it is necessary in considering relative costs to figure them, so far as possible, on a basis of full running time.

The lowest actual cost we have found for making low-quarter blood tops in any given period was 3.24 cents for a six-months production on a greater than normal output. This, however, is an extreme case which could seldom be duplicated by any mill even under the most favorable circumstances.

The following table from actual American records shows clearly these great variations. This table covers many millions of pounds of tops produced in 25 months divided into four periods. The variations in output in the respective periods is shown in terms of percentage of total production for each period at the bottom of each column.

Variations in cost of converting wool into tops.

Quality of top.	6 months (cents per pound).	6 months (cents per pound).	7 months (cents per pound).	6 months (cents per pound).
Unwashed territory, one-half blood or above	5.37	7.60	8.59	10.85
Australian and domestic, one-half blood and above	4.91	6.79	7.75	10.05
Unwashed territory, three-eighths blood	4.63	6.19	7.05	8.82
Australian or domestic, three-eighths blood	4.31	6.10	6.31	8.13
Australian or domestic high one-quarter blood	3.86	5.62	5.90	6.66
Quarter blood	3.24	4.48	4.89	6.09
Total production for 25 months, produced in each period, per cent	46.40	24.19	16.81	12.60

The labor cost by processes is shown in the following table, taken from other actual mill records for the production of about 5,000,000 pounds of tops:

Labor cost per pound of tops in the United States.

Sorting	$0.0063
Scouring	.0022
Carding	.0027
Combing	.0081
Total direct labor	.0194
Miscellaneous outside labor	.0074
Total labor cost	.0268

It is impossible in taking actual figures on a large output to separate labor costs according to the exact quality of the tops. The above figures include tops of fine merino to low quarter bloods. These tops, however, were primarily made for low-count yarns, and the labor costs may be taken as fairly representative of the labor costs in making tops of medium quality. A comparison of a large number of mills shows this to be true, and that the general expense and fixed charges are nearly equal to the labor cost; so that, excluding interest, the cost of tops in a mill running full time may be taken as ranging from 4 to 5 cents per pound on tops from low-quarter bloods to high-quarter bloods.

The combing industry in England and on the Continent is much more highly organized than in the United States, and is carried on with a relatively greater margin of profit per unit of top, so that the difference between actual costs appears to be greater than the difference in the commission rates. Statements were made to members of the board by combers in England to the effect that "We can do for a penny a pound what costs the Americans two pence." Actual figures given in some cases indicate the truth of this, so far at least as low-grade or medium-grade tops are concerned.

A comparison of the actual records of two similar plants—one in England and the other in the United States—showed the combing cost for the period of output in question (not including sorting) to be 2 cents in England and 4.27 cents in this country. The American plant, however, was making a slightly higher grade of tops. From the figures in both cases interest and depreciation were deducted, as the English charges were so disproportionately low as to show a difference in bookkeeping method on these items.

Another comparison from actual records in England and the United States showed for a year's period an average of receipts of 4 cents a pound in England and 7 cents a pound in the United States; while the profit per pound in the two cases was practically the same, it being very close to 1 cent per pound in each case. This is not an unusual profit per pound in England, and in the case just cited it amounted to 25 per cent of the commission charge in England, as against 14.3 per cent in the United States.

It is further interesting to note that the direct labor cost, excluding labor for repairs, power plant, etc., was in the case of these two plants 69 cents per 100 pounds in England and $1.76 in the United States, being slightly less than 25 per cent of the total cost in England and 33 per cent of the total cost in the United States. Other estimates were furnished the board in England to the effect that the direct labor cost is not more than 20 per cent of the total.

The following table is presented as fairly representative of the cost of making a very high quality of tops by mills using the French system of combing. The relative cost of combing by the French method and the Bradford method—that is, with the Noble comb—varies in different mills employing both methods. The output of the French comb is less than that of the Noble comb. But, on the other hand, more French combs can be tended by single operatives, so that some mills show an even slightly lower labor cost by the French system in spite of the smaller output per comb. This, however, is somewhat exceptional, and the French system is commonly considered the more expensive of the two, even in labor costs alone.

In the following table the charge for sorting has been excluded in order to make the figures comparable with European figures for combing by the same method:

Cost of converting wool into tops per pound of tops.

[French combing in the United States.]

	Choicest Australian.	70-80s, Australian.	XXX mixture.	Fine staple territory.
Scouring:				
Labor	$0.0017	$0.0017	$0.0017	$0.0017
Material	.0089	.0085	.0086	.0085
Total	.0106	.0102	.0103	.0102
Carding and combing:				
Labor	.0238	.0238	.0238	.0238
Material	.0040	.0040	.0040	.0040
Total	.0278	.0278	.0278	.0278
General expense	.0347	.0344	.0345	.0344
Total conversion cost (exclusive of sorting)	.0732	.0725	.0727	.0724

The following table is compiled from the actual records of a leading combing establishment on the Continent, showing the cost per pound and receipts per pound on an output of not less than 8,000,000 pounds of tops for a six months' period. These mills ran on fine Australian merinos and South American crossbreds. The variations in costs are the result of fluctuations in the output, and at no time in the period was the mill running at its full capacity. This should be borne in mind in a comparison with the table of American costs, which is based on full output. The system was, of course, that of French combing:

Cost of combing in a leading continental plant.

	Cost per pound.[1]	Receipts per pound.[1]
	Cents.	*Cents.*
First month	4.143	4.636
Second month	3.839	4.752
Third month	3.752	4.725
Fourth month	3.878	4.812
Fifth month	3.822	4.837
Sixth month	4.459	4.450

[1] Excluding sorting.

Average cost per month, 3.982 cents.
Average receipts per month, 4.695 cents.

The regular combing rates in Germany are given below:

Commission charges for combing in Germany.

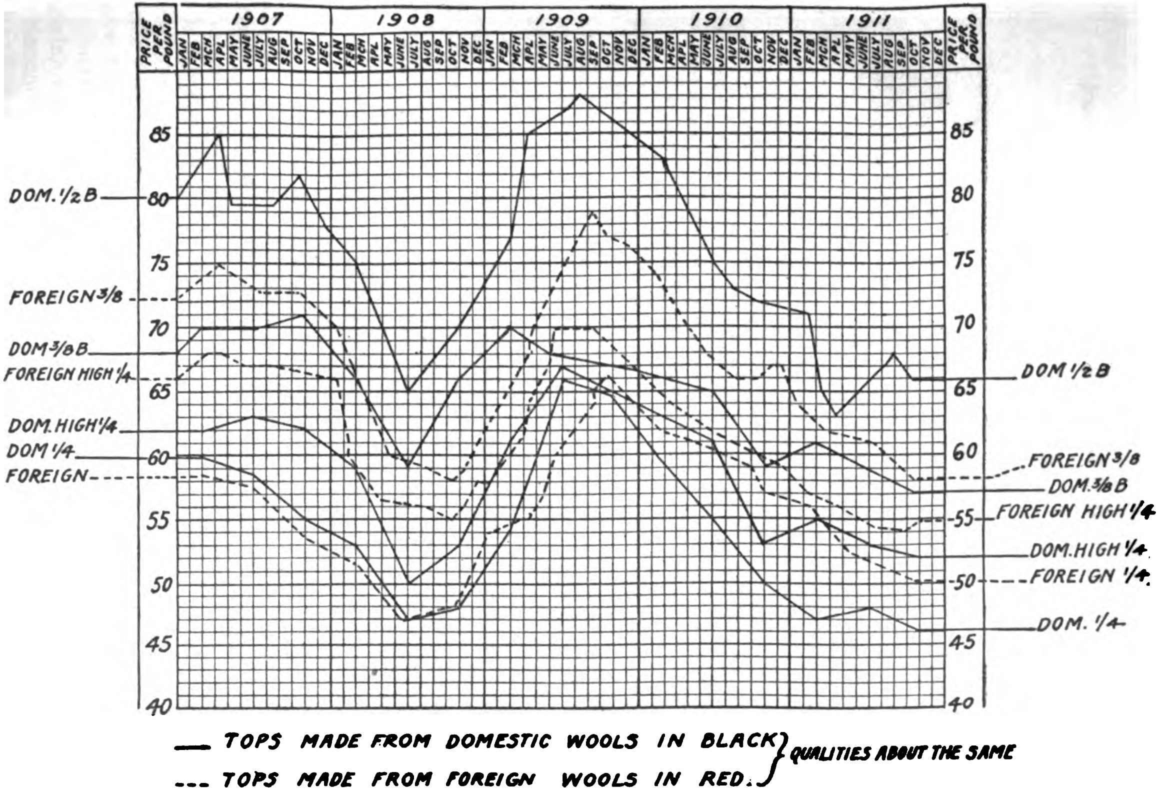
Kind of wool.	Cents per pound of tops and noils.
1. Merino wool	4.320
Crossbred wools (one-half blood quality)	4.320
2. Crossbred wools (high and low three-eighths blood)	3.780
3. Crossbred wools (quarter blood)	3.240
4. Common, britch, braid, etc	2.916

It will be noted that the rate is per pound of top and noil and would consequently be higher per pound of top by about 10 per cent.

The common charge in Germany for making high-grade Australian tops is 45 pfennigs per kilogram, or 4.86 cents per pound, and in this charge the combers reckon on a wide margin of profit. The returns from a representative German mill show the cost on Australian 60s to be 3.45 cents per pound, including interest.

It will be seen, then, as is to be expected, that there are many variations according to the grade of top made and from country to country. It is impossible, of course, to get a single figure showing the difference in cost either in cents or in percentage, even for a single grade. Actual records show that tops can, under certain circumstances, be made abroad at about one-half the American cost. The commission charges on high-grade tops run from 55 per cent to 65 per cent higher in this country, with a relatively greater difference in charge on the lower grade tops. In view of the facts related it seems a fair state-

TOP PRICES - JAN'Y. 1907 TO OCT. 1911.



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ment that the cost of making tops in the United States is about 80 per cent greater than abroad.

The chart facing this page gives prices for certain classes of tops from January, 1907, to October, 1911, compiled from actual purchases from various sellers in the Boston market.

COST OF CONVERTING TOPS INTO WORSTED YARN.

The investigation into the cost of worsted yarns involved three lines of inquiry: First, the securing of the actual book figures from mills for a given period of time, showing total quantity of yarn produced, variety of counts, average count, and total expenditures for the same period. These expenditures were analyzed in order to put different mills on a comparative basis as to overhead and fixed charges and all items not properly included in mill costs were taken out.

Secondly, many worsted spinners have prepared for their own use elaborate tables as to the cost of making different counts of yarn, itemized as to processes and the various elements of cost. Such figures, of course, do not give the costs for any specific lots of yarn produced within a given period, but in some ways they are even more valuable than the actual returns for any particular period, since they have been worked out from years of actual experience. The board, through its agents, has copied these confidential calculations from the records of various mills and these have been used to check the other figures.

Third, in connection with the investigation into worsted cloth, estimates were secured from many mills on the cost of making certain specific qualities of yarn, and these have been used for purposes of further comparison.

By checking the results of these three different inquiries and reducing the different methods of bookkeeping to the same basis, it has been possible to secure figures which can be depended upon.

Difficulties were, of course, encountered in such an inquiry, but they are perhaps less in the case of worsted yarns than in the case of any other branch of the industry.

To get an absolute cost figure for a given period it would be necessary to find a mill buying its tops and spinning only one quality of yarn for sale. No such mill exists, although there are mills which closely approximate to it in that the range of quality which they produce is very slight. Where a great variety of counts is produced it is impossible even for the mill itself absolutely to determine the proper apportionment of expenses to each separate count. So that mills which would operate under practically the same conditions and have the same average costs might, by employing different methods of distributing overhead charges, show a slight variation on any particular yarn.

Second, in taking actual figures for a given production period, even where the product is practically uniform, these figures will vary widely according to the output of the given period. A mill running full time or overtime can produce much more cheaply than a mill running half time. The table below gives actual costs for specimen weeks in a mill buying tops and making worsted yarn in the gray, of which about two-thirds is single ply and one-third twisted. No simpler proposition from the cost point of view can be found in the whole industry than this. It will be seen that the cost fluctuates greatly according to the amount of output. The actual amount of product is omitted to prevent identification of the establishment, but the comparative amounts are expressed in terms of 1,000 units. It will be seen that for the week of August 26 the cost was 9½ cents as compared with a cost of 26½ cents for the week of August 5, the production for the two weeks being in the ratio of 1,481 to 506.

Specimen weekly cost sheets.

	Cents per pound.
Week ending May 27, 1911 (yarn shipped, 1,000 units):	
Cost of spinning	0.0399
Cost of drawing	.0244
Cost of winding, twisting, spooling, etc	.0157
Cost of fixed expenses	.0741
Average count for week, 20.93.	
	.1541
Week ending June 17, 1911 (yarn shipped, 1,339 units):	
Cost of spinning	.0323
Cost of drawing	.0210
Cost of winding, twisting, spooling, etc	.0123
Cost of fixed expenses	.0554
Average count for week, 19.09.	
	.1210
Week ending Aug. 5, 1911 (yarn shipped, 506 units):	
Cost of spinning	.0617
Cost of drawing	.0359
Cost of winding, twisting, spooling, etc	.0218
Cost of fixed expenses	.1455
Average count for week, 19.76.	
	.2649
Week ending Aug. 26, 1911 (yarn shipped, 1,481 units):	
Cost of spinning	.0223
Cost of drawing	.0169
Cost of winding, twisting, spooling, etc	.0069
Cost of fixed expenses	.0497
Average count for week, 20.69	
	.0958

NOTE.—Cost of winding, twisting, spooling, etc., is figured on total weekly production. Actually only about 30 per cent of the production is wound, twisted, or spooled, so that the cost on this 30 per cent would be three and one-third times the figures given.

For the whole year of 1909, running on an average count of 24.1, the book figures of the mill show a cost of 8.3 cents, while on exactly the same count in 1910, with a production of only 60 per cent of the previous year, the cost rises to 18.7 cents. These figures are given simply to show the variations under different conditions of output and are printed as carried on the books.

In this mill the general item of "fixed expenses" is carried on the books in a certain definite amount, which includes interest and is, furthermore, in excess of the actual expenses, so that these figures should all be reduced in order to show absolute costs.

In view of this difficulty the Tariff Board has adopted a general rule of figuring all costs on the basis of full normal output, as in the case of tops.

Third, variations are found to appear not only according to variations in actual output due to general business fluctuations, but also according as a mill is producing just those yarns for which it is especially equipped. Thus a mill fully equipped for twisting, winding, and spooling will show an excessive cost in making single yarns, since a part of the plant remains idle. It is really underproduction in another sense. Or a spinning mill will normally be equipped as to carding and combing machinery to secure a maximum efficiency for the whole plant when producing yarn within a certain narrow range of counts. If the market demand of the moment requires the production of either higher or lower counts the cost onthese will be correspondingly increased, since the combing machinery will be in excess of spinning requirements in the first case, and below in the second case.

Thus the actual figures of certain mills show what would seem to be abnormally high costs on some counts and abnormally low costs on others, due to the fact that it in general makes a large quantity of a particular grade, for which its costs are below the average.

Fourth, in making any comparison, due regard should be had for the fact that the cost of making a given count of yarn varies with the quality of the wool from which it is made, with the weight of the roving, which is a product of the process called "drawing," and with the twist per inch. The same yarn can be spun from different sized rovings. So far as the weight of the roving is concerned, the variation here would be shown practically by a difference in cost in the drawing process and, taking the whole cost of production from top to yarn, would not be an element of much importance, except that one mill might show a higher cost for drawing and a relatively lower cost for spinning than another mill.

To illustrate the variations due to the quality of the material and the twist per inch, we present the following calculation from a leading mill. To simplify the matter as much as possible, we have taken only one count of yarn, namely 2/30s. with a uniform weight of roving. Similar variations can, of course, be calculated for each separate count.

Count of yarn.	Grade of wool.	Weight of roving (drams).	Twist in yarn.	Yearly production, in pounds.	Labor, not including spooling and reeling.	Salaries, not including spooling and reeling.	General expenses, not including spooling and reeling.
					Per lb.	*Per lb.*	*Per lb.*
2/30s	½ B	4	13	2,433,600	$0.06132	$0.00845	$0.02902
Do	do	4	13½	2,340,000	.06206	.00878	.03018
Do	do	4	14	2,260,800	.06269	.00909	.03124
Do	do	4	14½	2,181,600	.06342	.00942	.03237
Do	do	4	15	2,109,600	.06411	.00974	.03347
Do	do	4	15½	2,044,800	.06478	.01005	.03453
Do	do	4	16	1,972,800	.06533	.01042	.03579
Do	⅜ B	4	14	2,217,600	.06310	.00927	.03184
Do	do	4	14½	2,138,400	.06381	.00961	.03302
Do	do	4	15	2,073,600	.06448	.00991	.03405
Do	do	4	15½	2,001,600	.06524	.01027	.03528
Do	do	4	16	1,936,800	.06598	.01061	.03646
Do	do	4	16½	1,872,000	.06685	.01091	.03772
Do	do	4	17	1,828,800	.06732	.01124	.03861
Do	¼ B	4	14	1,915,200	.06624	.01073	.03687
Do	do	4	14½	1,850,400	.06705	.01111	.03816
Do	do	4	15	1,792,800	.06780	.01147	.03939
Do	do	4	15½	1,728,000	.06872	.01190	.04087
Do	do	4	16	1,677,600	.06950	.01225	.04209
Do	do	4	16½	1,634,400	.07018	.01258	.04321

Difficulties of this kind have been presented in order to make it perfectly clear that in attempting to make statements regarding the cost of making yarns great care should be taken to recognize all these variations and to combine the results into a fairly comparable basis. Even after making full allowance for these factors, mills may show differences of cost of production for exactly the same nominal count of yarn from the same stock and made under the same conditions, not only because of difference in local advantage or skill of management, but because some mills may be making yarns used in special fabrics, which, although of nominally the same quality and size may nevertheless require for this particular purpose an unusual amount of additional care and a slower rate of production.

It is well known, also, that the cost of making yarn from dyed tops is greater than when yarn is spun in the gray, and an additional allowance should always be made in such cases. When we come to such specialties as so-called "hard-twisted" yarn, the expense is, furthermore, greatly increased, both from the increase in waste and from the much smaller output in pounds for a given time. It is not necessary to attempt to go into details regarding all these different factors or to consider a great variety of counts. Since most mills are equipped for twisting as well as spinning, we present figures for two-ply yarn in the gray as representative of relative conditions of cost. The following table shows cost figures for the United States for a variety of such yarns. They have been computed after a careful study of the results from a large number of mills, and the total figures for costs are doubtless lower than will be shown in many cases.

On the other hand, certain mills will show lower figures on certain counts. The method adopted has been to prorate the general expense so far as possible to each separate process, including only in the item "general expense," as given in the table, such outlay as can not be properly charged to any one department. It is needless to say that the "general-expense" accounts from different mills have been edited to show only charges properly entering into costs, and interest has been deducted in all cases. The result is that these figures may be taken as presenting fairly the cost of production in well-equipped mills running full time under efficient management. The costs would be higher whenever production is below normal.

Cost per pound of converting tops into medium and high medium worsted yarns, as shown from records of efficient mills in the United States, on the basis of full-time production.

	Ply and count of yarn.									
	2/28.	2/32.	2/36.	2/38.	2/40.	2/42.	2/44.	2/46.	2/48.	2/60.
Drawing	$0.0322	$0.0357	$0.0390	$0.0407	$0.0415	$0.0423	$0.0455	$0.0491	$0.0502	$0.0591
Spinning	.0388	.0436	.0507	.0543	.0546	.0548	.0663	.0777	.0800	.1073
Twisting	.0255	.0306	.0364	.0393	.0412	.0432	.0456	.0480	.0500	.0673
Spooling and reeling	.0179	.0212	.0232	.0242	.0257	.0271	.0290	.0310	.0318	.0544
General expenses	.0118	.0136	.0155	.0164	.0168	.0173	.0191	.0209	.0215	.0300
Total conversion cost	.1262	.1448	.1648	.1749	.1798	.1847	.2055	.2267	.2335	.3181

The following two tables analyze the above costs, by processes, into productive labor per pound and all expenses other than productive labor properly chargeable to any process, together with other expenses not chargeable to any particular department:

Productive labor per pound.

[Mill running full.]

	Ply and count of yarn.									
	2/28.	2/32.	2/36.	2/38.	2/40.	2/42.	2/44.	2/46.	2/48.	2/60.
Drawing	$0.0170	$0.0182	$0.0199	$0.0208	$0.0212	$0.0216	$0.0232	$0.0251	$0.0256	$0.0312
Spinning	.0146	.0171	.0199	.0213	.0214	.0215	.0260	.0305	.0314	.0586
Twisting	.0142	.0171	.0208	.0226	.0234	.0242	.0255	.0268	.0279	.0406
Spooling and reeling	.0132	.0154	.0167	.0174	.0183	.0193	.0206	.0219	.0224	.0438
Total productive labor per pound	.0590	.0678	.0773	.0821	.0843	.0866	.0953	.1043	.1073	.1742

Conversion cost per pound, with special reference to department expense.

[Mill running full.]

	Ply and count of yarn.									
	2/28.	2/32.	2/36.	2/38.	2/40.	2/42.	2/44.	2/46.	2/48.	2/60.
Productive labor for all processes	$0.0590	$0.0678	$0.0773	$0.0821	$0.0843	$0.0866	$0.0953	$0.1043	$0.1073	$0.1742
All expense other than productive labor chargeable to drawing	.0152	.0175	.0190	.0198	.0203	.0207	.0223	.0240	.0246	.0279
All expense other than productive labor chargeable to spinning	.0242	.0265	.0308	.0330	.0332	.0333	.0403	.0472	.0486	.0487
All expense other than productive labor chargeable to twisting	.0113	.0136	.0157	.0167	.0178	.0190	.0201	.0212	.0221	.0267
All expense other than productive labor chargeable to spooling and reeling	.0047	.0058	.0065	.0069	.0074	.0078	.0084	.0091	.0094	.0106
All other expense not chargeable to a particular department	.0118	.0136	.0155	.0164	.0168	.0173	.0191	.0209	.0215	.0300
Total conversion cost	.1262	.1448	.1648	.1749	.1798	.1847	.2055	.2267	.2335	.3181

By "productive labor" is meant actual labor in the drawing room, spinning room, etc., but not including any labor for maintenance and repairs, power plant, general outside labor, and the like.

By "all expense other than productive labor chargeable to the department" is meant department materials, mill findings per department, power, light, and heating, prorated to each department; in fact, all items of expense which can be prorated to a single department.

The phrase "all other expense not chargeable to a particular department" explains itself.

By this method of accounting the item "general expense" becomes much lower than where a different system is adopted. In some cases it is customary to throw the general expense into one item without prorating according to department. In such case the general-expense charge would appear relatively high and the cost for each department relatively low, even where the total expense is the same.

Figures of cost were secured in England from various manufacturers on actual samples, and in the second column in the table below are given the figures which represent the average of these various calculations.

Comparative conversion cost of making certain counts of worsted yarn from tops.

Ply and count of yarn.	United States.	England.	
	Excluding interest. (Cost per pound of yarn.)	Including interest. (Cost per pound of yarn.)	For commission work, including interest and profit. (Cost per pound of yarn.)
	Cents.	*Cents.*	*Cents.*
2/24	10.86	5.6	6.6
2/28	12.62	6.6	7.6
2/32	14.48	8.1	9.1
2/36	16.61	9.6	10.1
2/40	17.99	10.6	12.2
2/50	24.67	13.7	15.2

The English figures of cost in this table are compared with the American figures, although an interest charge is included in the case of England but not in the case of the United States. The reason for this is that it is not possible to exclude the interest charge from the English figures; but it seemed better, with this explanation, to leave the American costs without interest charge, to make them identical with the table on page 648. Except for the item of interest, the figures for England may be taken as representing costs closely figured.

In the third column are given figures for commission spinning on similar counts of yarn, which include not only interest, but profit to the spinner. These were secured on specific samples of yarn and in some cases the quality of the wool may have varied slightly from that on which the second column is based. But these variations would not materially affect the results, and the figures may be taken as fairly comparable.

It appears from the table that the cost in the United States (interest not included) ranges from 70 per cent to 94 per cent greater than in England. Including interest in the American costs would raise this difference and for some counts the cost would be greater by more than 100 per cent.

In view of the fact that the figures as given for the United States have been put at what may be considered a low figure when compared with the large number of mills from which figures were received, it may be said that, making due allowance for variations on account of quality, etc., the actual manufacturing costs in the United States for turning tops into yarn is about twice what it is in England.

Care should be taken not to confuse this manufacturing or conversion cost with the total cost including the raw material. On the yarns on which figures were secured for commission spinning the actual conversion cost was in all cases well under 20 per cent of the total market value of the yarn.

COMPARATIVE CLOTH MANUFACTURING COSTS—FROM YARN TO FINISHED CLOTH.

As explained on pp. 626–631, the presentation of relative costs of cloth manufacture are based on specific samples of domestic and foreign products. In using the words "conversion cost," is meant the total expense incurred in manufacturing yarn into finished cloth ready for use by the consumer. It does not include the cost of the yarn, but does include the amounts expended for both direct and indirect labor, for department materials in the several processes of manufacture, and the charge for general expense. The different manufacturing processes which this may include are the following: Doubling and twisting, spooling, winding, dressing and drawing in, warp sizing, weaving, burling, mending, remending, specking, wet finishing, dyeing—yarn or piece—dry finishing, and inspecting. It does not take into account any labor cost that may have entered into the making of the yarn.

The weaving rate per yard is the price paid to the weaver for each yard woven by him, according to measurements made shortly after the cloth is taken from the loom. This explains the term "rate per yard in the raw" as that term is used in the following pages. It is, in other words, the rate paid for each yard of unfinished cloth. While in the loom, the cloth is held taut and after it is removed it naturally contracts more or less in length. There is also a shrinkage in the dyeing and finishing processes, the amount of such shrinkage in general varying according to the type of fabric.

Reference will frequently be made to the fact that in weaving a specified fabric a weaver generally tends two or more looms. This is an important element in textile manufacture, as the number of looms tended has a marked effect upon the rate per yard that is paid to the weaver. It should be understood, however, that in such cases the weaver does not necessarily make the same fabric on both or all of his looms.

There will be a number of statements made as to the number of yards of a certain fabric a weaver will produce in a given time. These figures represent the production that an average good weaver can turn out in weaving a specified fabric. When statements are made as to the amounts weavers would earn per week if engaged entirely in weaving a specified fabric, these earnings in such connection must, of course, be somewhat theoretical, since a weaver is seldom engaged for any considerable time on one fabric. They do represent, however, the average earnings of the weaver on that general class of goods, and are therefore important in a study of conversion cost of certain types of cloth.

The results of the board in regard to manufacturing cost of cloth here and abroad are as follows:

Sample No. 1.

Worsted Panama cloth, 36 inches wide and weighing 4.2 ounces to the finished yard: The actual loom analysis shows 1,412 warp ends on a reed 40 inches wide. The warp is two-ply No. 30 worsted yarn, and the weft is single-ply worsted yarn No. 26. There are 38 picks to the inch.

American mills.—It requires three-tenths of a pound of yarn stock to produce a yard of the cloth described. The average cost of the stock per pound is $0.717, making a total stock cost per yard of finished cloth of $0.215.

This cloth is commonly made in the United States in very large mills, and in these the conversion cost—from yarn to finished cloth—is about 8 cents; and of that amount $0.052 is for labor. This makes a total cloth cost of $0.295.

Taking all of the cost secured by the board, from mills of all sizes, the average conversion cost is 11.1 cents per yard.

The weaver's rate on this sample ranges from 1.3 cents to 3 cents per yard.

English mills.—Our figures show cost on this fabric in England to be as follows:

The stock described as entering into this cloth is taken at a cost of 37.8 cents per pound. Three-tenths of a pound is required to make a yard of cloth; therefore the stock cost is 11.34 cents per yard. The conversion cost is 4.01 cents per yard, making a total cost of $0.1535 per yard of finished cloth.

The English weaving rate is 0.68 of a cent per yard. It is two-loom work, and on Tappet 150-pick looms a weaver will produce 282 yards per loom per week of 55½ hours.

Foreign weaving rates.—The weaving rate on this sample at Roubaix, France, was found to be 0.829 of a cent per yard. It is two-loom work, and a weaver will produce 109 yards per day.

This cloth is made in the Glauchau district in Germany, and the weaver's rate is 0.87 of a cent per yard. It is two-loom work, and a weaver will produce 109.3 yards per day and earn 95 cents.

Sample No. 2.

Fancy cotton worsted, 30 inches wide and weighing 6.7 ounces to the yard: The actual loom analysis shows 1,519 warp ends on a reed width of 33 inches. The warp is all cotton; 1,261 threads of 10/30, 194 threads of 2/14, and 64 threads of 2/50. There are 42 picks or weft threads to the inch; one-half of these are cotton 2/24; one-half, or 21 picks, are worsted yarn No. 16, single ply. The stock material is dyed in the yarn.

American mills.—It requires 0.436 of a pound of yarn material of the kind described to produce a yard of this cloth. The stock material cost is $0.197 per yard.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 8.3 cents, making a total cost of $0.28 per yard. The labor cost is $0.058.

The weaver's rate in the raw is 1.89 cents to 2 cents per yard, and the weave-room expense is 3.8 cents per finished yard.

English mills.—Our figures show cost on this fabric in England to be as follows:

The stock material is taken at a cost of 18.2 cents per yard of finished cloth. The conversion or manufacturing cost is 4.15 cents per yard, making a total cost of $0.224 per yard on this sample.

The weaver's rate is 0.942 of a cent per yard in the raw. It is two-loom work, looms of the Dobby type being used, and on 160-pick looms a weaver will produce 222 yards per loom per week.

French weaving rates.—The weaver's rate on this sample in Roubaix, France, is 1.5 cents per yard. It is two-loom work, and on two looms a weaver will produce 66 yards per day of 10 hours.

Sample No. 3.

Brilliantine, 42 inches wide and weighing 3.7 ounces to the yard: The actual loom analysis shows 2,772 warp ends of yarn dyed cotton, single, No. 45, on a reed width of 48 inches. The weft is one-ply worsted yarn No. 28, and there are 59 picks to the inch.

American mills.—It requires 0.252 of a pound of yarn material to produce a yard of this cloth. The average cost of the stock described is $0.632 per pound, the total stock cost per yard of the finished goods being $0.159.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 8.9 cents per yard, making a total cloth cost of $0.248 per yard. There is a very wide range of conversion costs on this cloth, some very large mills being able to produce it for several cents less per yard, in fact, having a conversion cost slightly below 7 cents per yard. This, however, can take place only in the largest establishments, the cost of 8.9 cents, as given above, being much fairer to American mills as such.

The labor cost is 5 cents per yard, and the weave-room expense is 3 cents per yard.

The two-loom weaving rate on this sample ranges from 1.9 cents to 3 cents per yard, the latter being more common. It is usually woven by women, who sometimes tend four or five looms; occasionally by men, who tend eight looms. The 1.9 cent rate referred to above is for four-loom work, on looms speeded to 128 picks per minute, and a woman will ordinarily produce 25 to 30 yards per loom per day. There are instances of men running eight 122-pick looms on this material, and receiving the rate of 0.92 of a cent a yard; also of women running five looms of 145 picks per minute at the rate of 1.17 cents per yard. Of course the increased output protects the earnings of the weaver working at these low rates.

English mills.—Our figures show cost on this fabric in England to be as follows:

The cost of the yarn material described as entering into this cloth is taken at $0.409 per pound, and as 0.252 of a pound is required to produce a yard of cloth the yarn stock cost is $0.103 per yard. The conversion cost is 4.88 cents per yard, making the total cost of $0.1518 per yard of cloth.

The weaver's rate for two-loom work is 1.342 cents per yard, and the total weave room expense is 2.114 cents per yard. It is two-loom work, and on Tappet 155-pick looms a weaver will produce 160 yards per loom per week, assuming a 65 per cent efficiency.

Foreign weaving rates.—The weaver's rate on this sample in Roubaix, France, is 1.5 cents per yard. It is two-loom work, and on two looms a weaver will produce 54 yards in a day of 10 hours.

In Germany the weaver's rate on this sample was found to be, in the Glauchau-Meerane district, 1.3 cents per yard for two-loom work. Here a weaver will ordinarily produce 65 yards in a 10-hour day.

Sample No. 4.

Women's cotton warp sacking, 54 inches wide, weighing 8.5 ounces to the yard: The actual loom analysis shows 3,000 warp ends of single 24-cotton yarn. The weft is two and one-fourth run wool shoddy, and there are 33 picks to the inch.

American mills.—The average cost of the yarn material per pound is $0.264, and the stock material for a yard of cloth costs $0.217.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.106, making a total cloth cost of $0.323 per yard.

The labor in a yard of cloth costs 6.2 cents; the weave-room expense is 3.65 cents per yard.

The weaver's rate per yard is 3 cents as a two-loom rate.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The cost of the yarn material for a yard of this cloth is taken as $0.1146. The conversion cost is 6.5 cents, making a total cloth cost of $0.1796 per yard.

The weaving rate for two-loom work is 0.88 of a cent per yard. It is two-loom work and on Tappet 145-pick looms a weaver will produce 244 yards per loom per week of 55½ hours.

Foreign weaving rates.—The two-loom rate on this sample in Roubaix, France, is 0.88 of a cent per yard. A weaver will produce 90 yards in 10 hours, or 540 yards per week of 60 hours.

Sample No. 5.

All wool batiste, 35 inches wide, weighing 2.6 ounces to the yard. The actual loom analysis shows 2,262 warp ends on a reed width of 42 inches. The warp is single 45 worsted yarn, and the weft is single 65 worsted yarn. There are 64 picks to the inch.

American mills.—The cost of the yarn material used was $1.196 per pound, and 0.183 of a pound of yarn material is required to produce a yard of the cloth; the yarn material cost for a yard of goods is therefore $0.219.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 11.8 cents per yard, making a total cost of $0.337 per yard. There is a wide range of conversion costs on this sample, some large mills being able to make it for several cents less than the amount indicated above, in fact, having a conversion cost close to 7 cents per yard. This, however, could occur only in the largest establishments, and the cost in fairly representative mills is 11.8 cents, as stated above.

Taking this total conversion cost of 11.8 cents, it is found to contain 7.4 cents per yard labor cost, and an average weave-room expense of 4 cents per yard.

The weaver's rate per yard in the raw is difficult to determine, since the methods of weaving differ very materially. Three of the establishments reporting weave this cloth as two loom work, and pay from 3.65 cents to 4.2 cents per yard in the raw, 3.7 cents being the representative two-loom rate, and the one which for comparison with foreign costs should be taken. It happens, however, that in one establishment this cloth is put on four, five, and even six looms;

women operating four and five looms, usually four, while men operate six looms; the rate in such cases is 1.56 cents per yard. There are no foreign figures which are comparable with this method of production.

English mills.—Our figures show cost on this fabric in England to be as follows:

Taking the yarn material as reported at $0.781 per pound, and taking 0.183 of a pound as the amount required to produce a yard of the cloth, the total stock material cost for a finished yard is $0.144. The manufacturing or conversion cost is 5.56 cents, making a total cost of $0.1996 per yard.

The weaver's rate is 1.43 cents per yard for two-loom work. It is woven in England on Tappet 155-pick looms with a productive efficiency of 70 per cent, the weaver producing 155 yards per loom per week of 55½ hours.

French mills.—Our figures show a cost on this fabric in France to be as follows:

The yarn material cost is $0.1607 per yard of finished cloth. The manufacturing or conversion cost is 6.54 cents per yard, making a total cost of $0.2261 per yard of finished cloth.

The weaver's rate is 1.5 cents per yard in the raw. It is two-loom work, and from 60 to 65 yards are usually produced by a weaver in a day.

German weaving rates.—The only German cloth centers that make a specialty of cloths of this kind are Gera and the Glauchau-Meerane district. In Gera the weavers' rate is 1.349 cents per yard, and in Glauchau the rate is 1.517 cents per yard. In both places it is two-loom work, and a weaver will produce from 70 to 73 yards, or from 35 to 37 yards per loom per day.

Sample No. 6.

All-wool Panama, 42 inches wide, weighing 4.7 ounces to the yard: The actual loom analysis shows 2,476 warp ends of 2-ply worsted yarn No. 63 on a reed width of 47 inches. The weft is single-worsted yarn No. 33, and there are 56 picks to the inch. It is piece dyed.

American mills.—The average cost of the yarn stock described is $1.03 per pound, and 0.311 of a pound of yarn material is required to produce a yard of the cloth; the stock cost per yard of cloth is, therefore, $0.32.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as 12.7 cents per yard, making a total cost of $0.447 per yard of cloth. Of this 12.7 cents conversion cost, 7.8 cents is labor cost. The weave-room expense is 4.1 cents per yard.

The weaver's rate per yard ranges from 2.5 cents to 4 cents per yard. It is two-loom work.

English mills.—Our figures show cost on this fabric in England to be as follows:

The stock material taken at $0.74 per pound gives a stock cost of $0.23 per yard. The conversion cost is 5.72 cents per yard, making a total cloth cost of $0.2872 per yard.

The weave-room expense is 1.6 cents and the weaver's rate is 1.16 cents per yard in the raw. It is two-loom work, and on Tappet

155-pick looms, with a 70 per cent efficiency assumed, a weaver will produce 175 yards per loom per week of 55½ hours.

Foreign weaving rates.—The weaver's rate on this sample in Roubaix, France, is 1.9 cents per yard. It is two-loom work, and a weaver will produce 50 yards on two looms in a day of 10 hours.

The weaver's rate in Gera, Germany, where these goods are principally produced, is 1.4 cents per yard. It is two-loom work.

Sample No. 7.

All-wool batiste, 44 inches wide, weighing 3.7 ounces to the yard: The actual loom analysis shows 2,990 warp ends of single-worsted yarn No. 46 on a reed width of 52 inches. The weft is a single-thread worsted yarn No. 62, and there are 72 picks to the inch.

American mills.—It requires 0.25 of a pound of the yarn described above to produce a yard of this cloth. The average cost of such stock material is $1.225 per pound, making a total stock cost of $0.306 per yard of finished cloth.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as 13.2 cents per yard, making a total cloth cost of $0.438 per yard.

The labor cost is 9.2 cents per yard and the weave-room expense is 5.5 cents per yard.

The weaver's rate per yard in the raw is 3.8 cents.

English mills.—Our figures show the cost on this fabric in England to be as follows:

The cost of the yarn material being taken at $0.7808 per pound, the stock cost per yard of cloth is $0.1952. The conversion cost is 6.14 cents, making a total cloth cost of $0.2566 per yard.

The weave-room expense is 1.8 cents per yard and the weaver's rate is 1.36 cents per yard in the raw. It is two-loom work, and on Tappet 155-pick looms a weaver will produce 140 yards per loom per week of 55½ hours.

Foreign weaving rates.—The weaver's rate on this sample is 1.9 cents per yard in Roubaix, France. It is two-loom work, and the usual output is 44 yards per day of 10 hours.

The weaver's rate on this sample in the Glauchau-Meerane district of Germany is 1.197 cents per yard. It is two-loom work, and on the speedier looms of this district a weaver will produce 70 yards per day.

Sample No. 8.

Women's homespun, 54 inches wide, weighing 8.2 ounces to the yard: The actual loom analysis shows 1,890 warp ends of 4-run yarn on a reed width of 68 inches, shrinking to 54 inches in the finished cloth. The weft is 4-run yarn, and there are 26 picks to the inch.

American mills.—It requires 0.656 of a pound of yarn to produce a yard of this cloth. The average cost of the stock material was $0.59 per pound, making a total stock cost of $0.387 per yard.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.133 per yard, making a total cloth cost of $0.52 per yard. The labor cost is 8.2 cents per yard, the weave-room cost is 4.4 cents per yard.

The weaver's rate is 3.9 cents per yard in the raw. It is two-loom work, and on 90-pick looms an American weaver will produce, without extraordinary stoppages or delays, 45 yards per loom per day.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The yarn cost per yard of cloth is $0.273; the conversion cost is 6.61 cents, making a total cloth cost of $0.3391.

It is two-loom work, and on Tappet 145-pick looms a weaver will produce 307 yards per loom per week of 55½ hours.

Sample No. 9.

Woolen tweed, 56 inches wide, weighing 12.2 ounces to the yard: The actual loom analysis shows 980 warp ends; the reed width is 70 inches, shrinking to 56 inches in the finished cloth. There are 816 warp ends of 3-run doubled and twisted woolen yarn; 164 warp ends are of 2/60 and 2/48 worsted yarns twisted together. The weft is of two-ply three-run woolen yarn, doubled and twisted, and there are 16 picks to the inch.

American mills.—The average stock cost per pound was $0.682, and 0.92 of a pound of stock material is required to produce a yard of the finished cloth. There was therefore a total stock cost of $0.627 per yard.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.145, making a total cloth cost of $0.772 per yard. Of this conversion cost, 10.7 cents per yard was for labor. The weaving expense was 4.5 cents per yard.

The weaver's rate per yard in the raw on one-loom work ranges from 3.20 cents to 4.40 cents, the typical rate being 3.75 cents. A two-loom rate of 2.7 cents per yard appears in two cases.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The average cost of the stock material described is $0.3744 per pound, and as 0.92 of a pound is required for a yard of cloth, the total stock cost is $0.3445 per yard. The conversion cost is 6.89 cents per yard, making a total cloth cost of $0.4134 per yard.

The English weaver's rate is 1.8 cents per yard in the raw. It is one-loom work, and on an 80-pick loom a weaver will produce 300 yards in a week of 55½ hours, and earn $5.40.

Sample No. 10.

Women's all-wool blue serge, 54 inches wide and weighing 7.5 ounces to the yard: The actual loom analysis shows 2,904 warp ends of two-ply No. 36 worsted yarn on a reed width of 60 inches, shrinking to 54 inches in the finished cloth. The weft is single No. 28 worsted yarn, and there are 50 picks to the inch. It is piece dyed.

American mills.—It requires 0.522 of a pound of yarn to produce a yard of finished cloth. The average stock cost of the material described above is $0.823 per pound, making a total stock cost of $0.43 per yard of cloth.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 16.5 cents per yard, making a total cloth cost of $0.595 per yard. The labor cost is 8.8 cents per yard. The weave-room expense is 4.6 cents per yard.

The weaver's rate per yard in the raw is 3.8 cents in a typical mill. It is two-loom work, and on 120-pick looms a weaver will produce, without unusual delays, 32 yards per loom per day.

English mills.—Our figures show cost on this fabric in England to be as follows:

Yarn stock per yard of cloth, $0.268, conversion cost, 6.98 cents per yard, making a total cloth cost of $0.3378 per yard of finished goods.

The weaver's rate in the raw is 1.2 cents per yard. It is two-loom work, and on Tappet 145-pick looms a weaver will produce 162 yards per loom per week of 55½ hours.

French mills.—Our French cost figures on this sample range from 38.02 cents to 42.4 cents per yard. The conversion cost is 8.14 cents and the yarn cost 29.88 cents in the lowest mill, making a total cloth cost of $0.3802 as the lowest cost per finished yard.

The weaver's rate in Roubaix, France, on this sample is 1.482 cents per yard. It is two-loom work, and a weaver will produce 65 yards on two looms in 10 hours.

German weaving rates.—The principal center for the production of these goods in Germany is Glauchau, and the weaver's rate is 1.66 cents per yard in the raw. It is two-loom work, and a weaver will produce 60 yards in a day of 10 hours and earn $1.

Sample No. 11.

Men's fancy woolen overcoating, 55 inches wide, weighing 22 ounces to the yard: The actual loom analysis shows 1,140 warp ends of 1-run woolen yarn on a reed width of 68 inches. The weft is of 1¼-run woolen yarn, and there are 24 picks to the inch.

American mills.—It requires 1.67 pounds of the yarn described above to produce a yard of the finished cloth. The average cost of the yarn stock per pound is $0.422, making a total stock cost of $0.704 per yard.

From our figures the American conversion cost—from yarn to finished yard—on this fabric may be taken as $0.165 per yard, making a total cloth cost of $0.869 per yard.

The labor cost in 1 yard is 10 cents. The average weaving-room expense is 5.9 cents per yard.

The weaver's rate per yard in the raw is 4.8 cents. It is one-loom work, and on a 95-pick loom a weaver will produce, without extraordinary delays waiting for yarn or unusual stoppages, 35 yards per day of 10 hours.

English mills.—Our figures show the conversion cost in England on this fabric to be 8.1 cents per yard. The weave-room expense is 3.16 cents per yard.

The weaver's rate per yard in the raw is 2.26 cents. It is one-loom work, and on a 75-pick loom a weaver will produce 200 yards in a week of 55½ hours, and earn $4.52.

Foreign weaving rates.—The weaver's rate on this sample in Roubaix, France, is 2.29 cents per yard. It is one-loom work, and a weaver will produce from 38 to 40 yards in a day of 10 hours.

Weaver's rates on this sample were secured from five towns in Germany, as follows:

The rate at Aachen is 3.7 cents per yard on slow looms. At Cottbus the rate is 3.29 cents per yard. At both Spermberg and Luckenwalde the rate is 2.47 cents per yard. At Forst the rate is 2.67 cents a yard.

This material is almost universally woven on slow looms, and while at Aachen and Forst the rate is a little lower on faster looms, a weaver can not produce enough more to make his earnings any greater on the speedier looms. The trouble is that the yarn is so large and the shuttles run out so often that a slow loom is just as efficient as a speedier one; in other words, a slow loom will empty the shuttles as fast as a weaver can supply them. It was stated in Forst, for instance, that a spool would hold only 200 picks of this thread, and that from 3,000 to 3,500 picks an hour is all that a weaver can possibly produce, so that 30 yards per day would be about the limit of possible production, no matter what the theoretic speed of the loom.

Sample No. 12.

Women's worsted serge, piece dyed, 55 inches wide, weighing 9 ounces to the finished yard. The actual loom analysis shows 3,100 warp ends on a reed width of 62 inches. The warp is of 2-ply worsted yarn No. 33, the weft is single 24s. There are 56 picks to the inch.

American mills.—It requires 0.645 of a pound of yarn material to produce a yard of this cloth. The average cost of the yarn is $0.7463 per pound; hence the stock material for a yard of cloth costs $0.481.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.168 per yard, making a total cloth cost of $0.649 per yard. Of the conversion cost, 9.5 cents are for labor.

The weaver's rate is 4 cents per yard in the raw for two-loom work.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The cost of the yarn material per yard of cloth is $0.2674; the conversion cost is 7.77 cents per yard, making a total cloth cost of $0.3451 per yard.

The weaver's rate is 1.6 cents per yard in the raw for two loom work, and a weaver will produce 155 yards per loom per week of 55½ hours.

French mills.—Our figures show the cost in France on this fabric to be as follows:

The yarn material necessary to produce a yard of cloth costs $0.2780; the conversion cost is 8.3 cents per yard; making a total cloth cost of $0.361 per yard of finished cloth.

The weaving expense, or all labor cost from the finished yarn up to the dyeing and finishing of the woven goods, is 3.542 cents per yard, the dyeing and finishing cost is 4.858 cents per yard.

Sample No. 13.

Men's fancy woolen suiting, 50 inches wide, weighing 16 ounces to the yard: The actual loom analysis shows 2,400 warp ends; 2,200 warp ends are of cotton and shoddy mixed, and spun to a 16 cut yarn; 200 ends are cotton single 16s. The reed width is 64 inches, shrinking to

56 inches in the finished cloth. The weft is cotton and wool shoddy, spun to 14½ cut yarn, and there are 32 picks to the inch.

American mills.—It requires 1.1 pounds of the yarn described to produce a yard of this cloth. The average stock cost per pound is $0.254, making a total stock cost of $0.279 per yard of finished cloth.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.174, making a total cloth cost of $0.453 per yard. The labor cost in a typical American mill is 12.1 cents per finished yard. The weave-room expense is 7.5 cents per yard.

The weaver's rate per yard in the raw ranges from 5 to 6.5 cents; the typical one-loom rate is here taken to be 6.1 cents. It is usually one-loom work, and a weaver will, without extraordinary delays, produce 35 yards per day.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The stock yarn cost per yard of finished cloth is $0.246. The conversion cost is 8.63 cents per yard, making a total cloth cost of $0.3323 per yard.

The weaver's rate is 2.73 cents per yard in the raw. It is one-loom work, and on an 80-pick loom a weaver will produce 166 yards per week of 55½ hours.

Sample No. 14.

Fancy woolen overcoating, 55 inches wide, weighing 18.5 ounces to the yard: The actual loom analysis shows 1,576 warp ends, of which 1,488 ends are 1¼-run woolen yarn, 88 ends are 4½-run woolen yarn. The reed width is 65 inches. The weft is 1¼-run woolen yarn, and there are 24 picks to the inch.

American mills.—It requires 1.4 pounds of stock material as described above to produce a yard of finished cloth. The average stock cost is 34 cents per pound, making a total stock cost of $0.476 per yard.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 17.8 cents per yard, making a total cloth cost of $0.654 per yard. The labor cost on this sample is 9.5 cents per yard. The weave-room expense is 5.6 cents per yard.

The weaver's rate per yard in the raw is 4.7 cents. It is one-loom work, and on 90 to 98 pick looms a weaver will produce, without extraordinary delays, 40 to 45 yards per day.

English mills.—Our figures show cost on this fabric in England to be as follows:

Taking the described yarns at a cost of 23.38 cents per pound, and 1.4 pounds being required for a yard of finished cloth, the material cost per yard is $0.3273. The conversion cost is 7.77 cents per yard, making a total cost of $0.4050 per yard of finished goods.

The weaver's rate per yard in the raw is 2 cents. It is one-loom work, and on an 80-pick loom a weaver will produce 260 yards in a week of 55½ hours and earn $5.20.

Sample No. 15.

Women's worsted cheviot, 54 inches wide, and weighing 10 ounces to the yard, piece dyed: The actual loom analysis shows 2,160 warp ends of 2-ply worsted yarn No. 25 on a reed width of 66 inches, shrinking to 54 inches in the finished cloth. The weft is also 2-ply worsted yarn No. 25, and there are 33 picks to the inch.

American mills.—It requires 0.702 of a pound of the yarn material described above to produce a yard of the finished cloth. The average cost of such yarn stock per pound is $0.867, making a total yarn stock cost of $0.608.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 19 cents per yard, making a total cloth cost on this sample of $0.798. The labor cost is 10.3 cents per yard of finished cloth. The weave-room expense is 3.3 cents.

The weaver's rate per yard in the raw is 2.9 cents. It is two-loom work, and on 120-pick looms a weaver will ordinarily produce 70 yards in a day of 10 hours.

English mills.—Our figures show cost on this fabric in England to be as follows:

The yarn stock cost per yard of cloth is taken as $0.2801. The conversion cost is 8.53 cents per yard, making a total cloth cost per yard on this sample of $0.3654. The weave-room expense is 1.28 cents per yard.

The weaver's rate in the raw is 0.96 of a cent per yard. It is two-loom work, and on Tappet 145-pick looms a weaver will produce 217 yards per loom per week of 55½ hours.

French mills.—Our figures of cost on this sample were secured from three French mills, ranging from $0.36 to $0.3806. Detailed costs were furnished only by the mill showing the lowest cost. The yarn stock material cost $0.2734 per yard, conversion cost 8.66 cents per yard, making a total cost of $0.36 per yard.

The weaving rate in French mills was secured through channels other than the above and found to be, in Roubaix, France, 0.97 of a cent per yard. It is two-loom work, and a weaver without extraordinary delays would produce 100 yards per day on two looms.

German weaving rates.—The weaver's rates on this sample were secured from several cloth centers in Germany, but the only place where it is commonly made as two-loom work is Gera. There the weaver's rate is 0.75 of a cent a yard, and a weaver will produce 150 yards per day. In other German cloth centers this sample is produced as one-loom work.

Sample No. 16.

Covert cloth 54 inches wide, weighing 11.5 ounces to the yard: The actual loom analysis shows 3,760 warp ends on a reed width of 68 inches. The warp is 5½ run woolen yarn, the weft is of 5 run woolen yarn, and there are 42 picks to the inch.

American mills.—It requires 0.805 of a pound of yarn material to produce a yard of this cloth. The average cost of the stock per pound is $0.597, making a total stock cost of $0.48 per yard.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 21.2 cents per yard, making a total cloth cost of $0.692 per yard. The labor cost is 13.3 cents per yard. The weave-room expense is 6.1 cents per yard.

The weaver's rate is 4.3 cents per yard on two-loom basis.

English mills.—Our figures show cost on this fabric in England to be as follows:

Yarn material, $0.3614 per yard of cloth, conversion cost, $0.1107, making a total cost of $0.4721 per yard of finished cloth.

The weaver's rate per yard is 1.257 cents and the additional weave-room expense is 1.77 cents. It is two-loom work, and on Tappet 135-pick looms a weaver will produce 191 yards per loom per week of 55½ hours.

Foreign weaving rates.—The weaver's rate on this sample in Roubaix, France, is 1.235 cents per yard. It is two-loom work, and on two looms a weaver will produce 71 yards of cloth in 10 hours and earn $0.88.

The weaving rates on this sample were secured from the Gera district in Germany, which is the principal center for its production. The two-loom rate is 1.935 cents, and a weaver will produce 56 yards in a day of 10 hours.

At Spermberg, Germany, the one-loom rate is 3.187 cents per yard, and a weaver working three shuttles per loom will produce 27 yards in 10 hours. The German trade name of this cloth is women's melton goods.

Sample No. 17.

Women's all-wool sacking, 54 inches wide, weighing 10.5 ounces to the yard: The actual loom analysis shows 2,646 warp ends of 4-run woolen yarn on a reed width of 76 inches, shrinking to 54 inches in the finished cloth. The weft is also 4-run woolen yarn, and there are 37 picks to the inch. It is piece dyed.

American mills.—It requires 0.766 of a pound of yarn material to produce a yard of this cloth. The average stock cost per pound is $0.611, making a stock cost of $0.468 per yard of finished cloth.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.212, making a total cloth cost of $0.68 per yard. The labor cost in a yard of this cloth is 11 cents. The weave room expense is 5.6 cents per yard.

The weaver's rate per yard in the raw is 3 cents for two-loom work, and 5.5 cents for one-loom work. This cloth is usually woven as two-loom work in the United States, and a weaver on 100-pick looms will produce, without unusual delays for yarn, or other contingencies, 30 to 35 yards per loom per day.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The stock material costs $0.36 per yard of finished cloth. The conversion cost is $0.1067 cents per yard, making a total cloth cost of $0.4667 per yard.

The weaver's rate per yard in the raw is 1.3 cents for two-loom work, and on Tappet 145-pick looms, assuming a 60 per cent efficiency, a weaver will produce 230 yards per loom per week of 55½ hours. The weave-room expense is 1.32 cents per yard, including, of course, the weaver's rate.

French mills.—Our figures show the cost in France on this fabric to be as follows:

The yarn cost is $0.2858 per yard; the conversion cost is $0.1485, making a total cost of $0.4343 per yard.

The weave-room expense per yard, including weaving rate, is 1.95 cents. The weaver's rate is 1.147 cents per yard. It is two-loom work, and on two looms a weaver will produce 85 yards in a day.

German weaving rate.—The weaver's rate per yard in the raw in Gera, Germany, the principal center for this class of goods, is 2.13 cents. It is two-loom work, and on 120-pick looms a weaver will produce 66 yards per day of 10 hours.

Sample No. 18.

Men's fancy woolen suiting, 56 inches wide, weighing 12 ounces to the yard: The actual loom analysis shows 1,680 warp ends on a reed width of 68 inches. Of these, 1,500 ends are of three-run woolen yarn; 36 ends are one and one-half run woolen yarn; 144 ends are silk, single No. 8. The weft is of three and one-half run woolen yarn, and there are 34 picks to the inch.

American mills.—The analysis shows that 0.852 of a pound of the yarn material, as described above, is required to produce a yard of the finished cloth. The average cost of the yarn stock being $0.574 per pound, the stock cost is therefore $0.489.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 21.3 cents per yard, making a total cloth cost of $0.702 per yard. The labor cost is 13 cents per yard. The weave-room expense is 7 cents per yard.

The weaver's rate per yard in the raw ranges from 5.6 cents to 6.8 cents, 6.2 cents being the usual rate and the one here taken as typical. It is one-loom work, and on a 100-pick loom a weaver will ordinarily produce from 35 to 38 yards in a day.

English mills.—Our figures show the conversion cost from yarn to finished cloth on this fabric in England to be 9.4 cents per yard.

The weaver's rate is 2.6 cents per yard in the raw. It is one-loom work, and on a 75-pick loom a weaver will produce 173 yards in a week of 55½ hours and earn $4.50.

Foreign weaving rates.—In Roubaix, France, the weaver's rate on this sample is 3.35 cents per yard. It is one-loom work, and 30 yards is considered a good output in a day of 10 hours.

In Germany the weaver's rate on this sample was ascertained at Kirchberg and at Forst. At Kirchberg, on slow looms, the rate was 3.92 cents per yard, and a weaver would produce 25 yards in 10 hours. At Forst the rate was 3.15 cents, and a good weaver would produce 33 yards in a day of 10 hours.

Sample No. 19.

Women's all-wool worsted serge, 56 inches wide, weighing 10 ounces to the yard: The actual loom analysis shows 3,528 warp ends of two-ply worsted yarn No. 36. The weft is single worsted yarn No. 26. There are 55 picks to the inch. It is piece dyed.

American mills.—It requires 0.652 of a pound of yarn to produce a yard of this cloth. The average cost of this stock was $0.805, making a yarn material cost of $0.525 per yard of cloth.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 21.5 cents per yard, making a total cost of $0.74 per yard of cloth. The labor cost is 11.9 cents per yard. The weave-room expense is 5.1 cents per yard.

The weaver's rate ranges from 3.25 cents to 5.5 cents per yard on two looms, 4.1 cents being the typical rate.

English mills.—Our figures show the conversion cost from yarn to finished cloth on this fabric to be $0.091 per yard in England.

The weaver's rate is 1.44 cents per yard in the raw. It is two-loom work, and on Tappet 145-pick looms a weaver will produce 150 yards per loom per week of 55½ hours.

Sample No. 20.

Women's all-wool broadcloth, 54 inches wide, weighing 9.3 ounces to the yard: The actual loom analysis shows 3,120 warp ends of 6½-run woolen yarn on a reed width of 82 inches, shrinking to 54 inches in the finished cloth. The weft is 5½ run woolen yarn, and there are 40 picks to the inch in the raw, fulling to 46 in the finished cloth. It is piece dyed.

American mills.—The mill analysis shows that 0.812 of a pound of yarn stock is required to produce a yard of the finished cloth. The average stock cost per pound is $0.612, making a total stock cost per yard of finished cloth of $0.50.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.216 per yard, making a total cloth cost of $0.716 per yard. The labor cost is 11 cents per yard.

The weaver's rate on two-loom work is 3 cents per yard.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The cost of the yarn material entering into this cloth is taken as $0.493 per pound, and as 0.812 of a pound is required to produce a yard of cloth, the yarn material costs $0.4003 per yard. The conversion cost is $0.1034 per yard, making a total cloth cost of $0.5037 per yard.

The weaver's rate is 1.08 cents per yard in the raw. It is two-loom work, and on Tappet 145-pick looms a weaver will produce 198 yards per loom per week of 55½ hours, a 65 per cent efficiency being assumed.

Foreign weaving rates.—The weaver's rate on this sample in Roubaix, France, is 1.2 cents per yard. It is two-loom work, and a weaver will produce 66 yards in a day of 10 hours.

The two-loom rate on this sample in Aachen, Germany, is 1.97 cents per yard. It is always woven by women on "overpick" looms, making 125 picks to the minute. A woman working on this cloth will produce 32 yards in a day and earn 63 cents.

Sample No. 21.

Fancy woolen overcoating, 54 inches wide, weighing 16 ounces to the yard: The actual loom analysis shows 2,380 warp ends of 2¼ run woolen yarn, on a reed width of 68 inches, shrinking to 54 inches in the finished cloth. The weft is of 2¼ run woolen yarn, and there are 38 picks to the inch.

American mills.—It requires 1.12 pounds of yarn material to produce a yard of finished cloth. The average stock cost per pound is $0.457, making a total stock cost of $0.562 per yard.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.217 per yard, making a total cloth cost of $0.729 per yard. The labor cost is 13.4 cents per yard; the weave-room expense is 8.2 cents per yard.

The weaver's rate is 7.6 cents per yard in the raw. It is one-loom work, and on a 90-pick loom a weaver will, without extraordinary delays or waits for warp, produce 33 yards per day of 10 hours.

English mills.—Our figures show the cost in England on this fabric to be as follows:

Taking the cost of a pound of the yarn material entering into this cloth at $0.3131, and 1.12 pounds being necessary to produce a yard of the cloth, the stock cost per yard is $0.3507. The conversion cost is 8.9 cents per yard, making a total cloth cost of $0.4397 per yard.

The weaver's rate is 3.16 cents per yard in the raw. It is one-loom work, and a weaver will produce 137 yards on a 75-pick loom in a week of 55½ hours.

Sample No. 22.

Men's blue serge, 56 inches wide and weighing 14 ounces to the yard: The actual loom analysis shows 3,048 warp ends on a reed width of 63 inches, shrinking to 56 inches in the finished cloth. The warp yarn is two-ply worsted No. 24; the weft is single No. 12. There are 44 picks to the inch. It is piece dyed.

American mills.—It requires within the merest fraction of a pound of yarn material to produce a yard of this cloth. The warp yarn costs an average of $0.77 per pound; the weft, $0.645. There is slightly more weight in the warp than in the weft; but this is so slight as to be negligible. The yarn material cost for a yard of cloth should be taken at $0.672.

From our figures the American conversion cost from yarn to finished cloth may be taken as 22.2 cents per yard, making a total cloth cost of $0.894 per yard. Analyzing this conversion cost, it is found to contain 10.9 cents as a labor cost per yard. The weave room expense is from 2.88 cents to 4 cents per yard of finished cloth.

The weaver's rate is 2.6 cents per yard in the loom. This is, of course, a two-loom rate, and a weaver on two looms of 130-pick efficiency will produce, without accidents or waits for material, 40 yards per loom per day.

English mills.—Our figures show cost on this fabric in England to be as follows:

The cost of the yarn material for a yard of cloth is given at $0.3718. The manufacturing cost is 11.93 cents, making a total of $0.4911 per yard.

The weaver's rate is 1.37 cents per yard in the raw. It is two-loom work, and on 145-pick looms a weaver will produce 190 yards per loom per week, and earn $5.20.

French weaving rates.—The weaver's rate on this cloth in Roubaix, France, is 1.76 cents per yard. It is two-loom work, and a weaver will produce 66 yards of cloth in a day of 10 hours, and earn $1.16.

Sample No. 23.

Men's blue worsted serge, 54 inches wide, weighing 12 ounces to the yard: The actual loom analysis shows 3,320 warp ends on a reed width of 61½ inches, shrinking to 54 inches in the finished cloth. The warp is two-ply 24 and the weft single 24 worsted yarn. There are 54 picks to the inch. It is piece dyed.

American mills.—The yarn cost as reported is $0.75 per pound, and it requires 0.8 of a pound of yarn material for a yard of finished cloth; the stock cost, therefore, is $0.60 per yard.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.235 per yard. This is within 0.6 of a cent of the average of all the firms giving complete costs reports on this sample, and within less than 0.5 of a cent of the cost given by the mill making the sample. The total cloth cost, therefore, is $0.835 per yard. Analyzing the conversion cost, it is found that 15 cents per yard is for labor.

The weaver's rate is 4 cents per yard on the loom, making a weaving cost of 4.75 cents per yard of finished cloth. It is two-loom work, and a weaver will produce on 120-pick looms, without extraordinary delays, 24 yards per loom per day.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The stock material costs $0.366 per yard of finished cloth; the conversion or manufacturing cost is $0.104, making a total cloth cost of $0.47 per yard.

It is two-loom work, and on 145-pick looms a weaver will produce 155 yards per loom per week of 55½ hours.

French mills.—Our French figures on this cloth show that $0.4426 per yard is the net cost of this fabric at the mill.

Sample No. 24.

Fancy cotton-warp worsted, 56 inches wide and weighing 12 ounces to the yard: The actual loom analysis shows 4,136 warp ends, of which 2,688 ends are cotton 16/80; 1,336 ends are two-ply 26 cotton yarn; and 112 ends are 42/2 silk yarn. The width in the reed is 65 inches. The weft is two-ply worsted yarn No. 40, and there are 64 picks to the inch.

American mills.—It requires 0.8 of a pound of yarn material to produce a yard of this cloth. The average cost of the yarn described is $0.714 per pound, making a total stock cost of $0.571 per yard of finished cloth.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 24 cents, making a total cloth cost of $0.811 per yard on this sample. The labor cost is 17 cents per yard.

The weaver's rate on two-loom work ranges from 6.4 cents to 6.9 cents per yard. Two establishments gave a one-loom rate of 13.2 cents per yard on this sample.

English mills.—Our figures show cost on this fabric in England to be as follows:

Material, $0.5076 per finished yard; conversion cost, 9.85 cents per yard, making a total cloth cost of $0.6061 per yard. The weaver's rate is 2.6 cents per yard in the raw. It is two-loom work, and on Tappet 140-pick looms a weaver will produce 114 yards per loom per week of 55½ hours.

Foreign weaving rates.—In Roubaix, France, this is one-loom work and the rate is 5.29 cents per yard. A weaver will produce 21.8 yards in a day of 10 hours, and earn $1.15.

Weavers' rates on this sample were secured from four of the cloth centers in Germany, as follows:

At Forst the rate is 6.85 cents, and a weaver will produce 17 yards in a day.

At Aachen the rate is 7 cents per yard, and a weaver will produce 83 yards in a week of 58½ hours, and earn $5.81.

At Cottbus the rate on 100-pick looms is 5.48 cents per yard, and a weaver will produce 20 yards in a day. On looms of 80 picks, or less, the rate is 6.54 cents per yard, and 17 yards per day is considered an excellent day's work on these looms.

At Spermburg the rate is 6 cents per yard, and 16 yards per day is considered a good day's work.

Sample No. 25.

Fancy cassimere, 56 inches wide, weighing 16 ounces to the yard: The actual loom analysis shows 2,672 warp ends of 3½ run woolen yarn on a reed width of 68 inches, shrinking to 56 inches in the finished cloth. The weft is also 3½ run woolen yarn, and there are 42 picks to the inch.

American mills.—It requires 1.16 pounds of yarn material to produce a yard of this cloth. The average stock cost per pound is $0.568, making a total stock cost of $0.658 per yard.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.245, making a total cloth cost of $0.903 per yard. Analyzing this conversion cost it is found that 15.4 cents per yard is for labor; the average weaving expense is 8.8 cents per yard of finished cloth.

The weaver's rate is 6.6 cents per yard in the raw. It is one-loom work, and on a 96-pick loom a weaver will produce, without extraordinary delays, 30 yards in ten hours.

English mills.—Our figures show the cost in England on this fabric to be as follows:

Based upon a yarn cost of $0.3733 per pound, the stock cost per yard of goods is $0.433. The conversion cost is $0.1136 per yard, making a total cloth cost of $0.546 per yard.

The weaver's rate is 3.47 cents per yard in the raw. It is one-loom work, and on a 70-pick loom a weaver will produce 124 yards in a week of 55½ hours, and earn $4.30.

Sample No. 26.

Fancy cotton warp worsted, 60 inches wide, weighing 11.2 ounces to the yard: The actual loom analysis shows 4,056 warp ends on a reed width of 69 inches. Of these warp ends, 3,848 are cotton 2/30, and 208 ends are mercerized cotton 2/50. The weft is 2-ply number 40 worsted yarn, and there are 62 picks to the inch.

American mills.—It requires 0.794 of a pound of yarn material to produce a yard of cloth; the average cost of the yarn used was $0.692 per pound; the resulting cost of the stock material in a yard of cloth is $0.55.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.249, making a total cloth cost of $0.799 per yard.

Of this conversion cost of 24.9 cents, 15.8 cents per yard is for labor. The weave room expense is 7 cents per finished yard.

The weaver's rate per yard in the raw ranges from 9.1 cents to 10.4 cents for one-loom work, and from 5.5 cents to 6.1 cents for two-loom work. The mill making the sample pays 5.7 cents per yard for two-loom work, and this is the typical two-loom rate.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The yarn material for a yard of cloth is taken at a cost of $0.4085, the conversion cost at $0.109 per yard, making a total cloth cost of $0.5175 per yard.

The weaver's two-loom rate in the raw is 2.6 cents per yard, and on two 130-pick looms a weaver will produce 130 yards per loom per week of 55½ hours.

Foreign weaving rates.—In Roubaix, France, the weaver's rate on this cloth is 2.47 cents per yard on two looms, and a weaver will produce 38 yards in a day.

Weaver's rates on this sample were secured from three cloth centers in Germany. At Munchen-Gladbach it is two-loom work and the two-loom rate is 3.4 cents per yard; a weaver will produce 31 yards in a day and earn $1.05.

At Cottbus this is one-loom work, and the rate on looms of 90 to 100 picks or over per minute is 5.8 cents per yard; on looms 80 picks or less the rate is 6.3 cents per yard.

At Aachen this is one-loom work; the rate is 5.8 cents per yard, and a weaver will average 103 yards per week, and earn $5.97.

The weaver's rates on one-loom work in the United States are practically double the one-loom rates in the one-loom districts of Germany, while the two-loom rates in this country bear practically the same relation to the two-loom rates in Europe on this sample.

Sample No. 27.

Women's cheviot, 54 inches wide and weighing 13 ounces to the yard: The actual loom analysis shows 2,240 warp ends of two-ply No. 20 yarn on a 69-inch reed, shrinking to 54 inches in the finished cloth. The weft is also two-ply No. 20 yarn, and there are 33 picks to the inch.

American mills.—It requires 0.93 of a pound of yarn material to produce a yard of finished cloth. The average stock cost per pound of the material described above is $0.804, making a total cost per yard of $0.748.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 25 cents per yard, making a total cloth cost of $0.998 per yard. The labor cost is 12.3 cents per yard. The weave-room expense is 3.5 cents.

The weaver's rate per yard in the raw is 2.46 cents. It is two-loom work, and on 90-pick looms a weaver will produce ordinarily 35 to 40 yards per loom per day.

English mills.—Our figures show a cost on this fabric in England to be as follows:

The stock material is taken at 40 cents per pound in English mills, making a material cost of 37.2 cents per yard of cloth. The conversion cost is 10.43 cents per yard, making a cloth cost of $0.4763 per yard of finished cloth.

The weaver's rate is 1.12 cents per yard. In it two-loom work, and on Dobby 140-pick looms, the weaver will produce 210 yards per loom per week of 55½ hours.

French mills.—Our figures show a cost on this fabric in France to be as follows:

The stock material as described costs 31.82 cents per yard of finished cloth. The conversion cost is 12.55 cents per yard, making a total cloth cost of $0.4437 per yard.

The weaver's rate is 1 cent a yard. This is the two-loom rate, and it was stated that while a weaver would not run two looms on this cloth, he would operate two looms—one on this material and one on something requiring less attention—and he would ordinarily produce 93 yards in 10 hours on the two looms.

Foreign weaving rates.—Weavers' rates were secured from several points in Germany on this sample. In Gera, a principal center for the manufacture of women's cloth, it was said that while these cheviots ordinarily fell under the rates for women's stuff, yet because they are so heavy the weavers have insisted, and for the most part successfully, on securing men's goods rates on this cloth. The thread being large, the spools empty quickly, and while a man can not watch two looms on this material, he may operate two looms—one on this and one on material requiring less attention. In such cases the rate falls into the women's cloth list, and is 1.06 cents per yard; when woven as men's goods the rate would be practically twice this amount, but it would be one-loom work. When operating two looms a weaver will produce, on 120-pick looms, 90 yards in a day of 10 hours. In the other cloth centers of Germany this was one-loom work, and the rate therefore would not be comparable with what has been here said on this sample.

Sample No. 28.

Men's fancy woolen suiting, 56 inches wide, weighing 13 ounces to the yard: The actual loom analysis shows 2,176 warp ends; 2,040 warp ends are of three-run woolen yarn, 68 warp ends are of two-ply worsted yarn number 28, and 68 warp ends are of silk. The width in the reed is 68 inches, shrinking to 56 inches in the finished cloth. The weft is of three-run woolen yarn, and there are 32 picks to the inch.

American mills.—The stock material described above costs on an average $0.593 per pound, and it requires 1 pound of material to produce a finished yard. Therefore the stock cost is $0.593 per yard.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.254 per yard of cloth, making a total cloth cost of $0.847 per yard. The labor cost is 15 cents per yard. The weaving expense is 7.1 cents per yard.

The weaver's rate in the raw ranges from 5.3 cents to 6.8 cents, 5.6 cents being the typical rate. This is one loom work, and on looms ranging from 92 to 98 picks per minute a weaver will produce 35 to 40 yards in a day of 10 hours.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The cost of the yarn material entering into this cloth is taken as $0.31 per yard of finished cloth; the conversion cost as 9.8 cents per yard, making a total cloth cost of $0.408 per yard.

The weaver's rate is 2 cents per yard in the raw. It is one-loom work, and on a 75-pick loom a weaver will produce 236 yards in a week of 55½ hours.

Foreign weaving rates.—The weaver's rate on this sample in Roubaix, France, is 3 cents per yard. It is one-loom work, and a weaver will produce 38 yards in a day.

Weavers' rates were secured from two cloth centers in Germany, namely, Crimmitschau and Forst. The Crimmitschau rate is 3.56 cents per yard, and the normal output of the weaver is 33 yards per day. It is one-loom work. At Forst the one-loom rate is 3.29 cents per yard, and on a 90-pick loom a weaver will produce, without extraordinary stoppages or waits for material, 32 yards in 10 hours.

Sample No. 29.

Women's all wool serge, 54 inches wide, weighing 8.2 ounces to the yard: The actual loom analysis shows 4,500 warp ends of single thread worsted yarn No. 30; the weft is of the same yarn, and there are 65 picks to the inch. It is piece dyed.

American mills.—The average stock cost shown is $0.967 per pound, and it requires 0.59 of a pound of yarn material to produce a yard of this cloth; the total cost is therefore $0.57.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 25.8 cents per yard, making a total cloth cost per yard of $0.828. The labor cost is 14.5 cents per yard; the weave-room expense, 6.3 cents per yard.

The weaver's rate per yard in the raw is 4.7 cents.

French mills.—Our figures show the cost on this fabric in France to be as follows:

The total cost per yard is $0.4586; the material yarn cost being $0.3564 and the conversion cost 10.22 cents per yard.

The weaver's rate per yard in the raw is 1.9 cents. It is two-loom work, and a weaver will produce 50 yards of cloth in a day of 10 hours.

German weaving rates.—The weaver's rate in Gera, Germany, is 2.2 cents per yard in the loom. It is two-loom work, and a weaver's average output would be 43 yards per day on 120-pick looms.

Sample No. 30.

Fancy worsted, 56 inches wide inside the selvage, weighing 14 ounces to the yard: The actual loom analysis shows 3,444 warp ends, 344 of which are silk, 3,100 of 2-ply No. 20 worsted yarn. The width in the reed is 67.5 inches, shrinking to 56 inches inside the selvage in the finished cloth. The weft is single No. 16 worsted yarn, and there are 48 picks or weft threads to the inch. It is woven from dyed yarn.

American mills.—One pound of yarn material is required by the average plant to produce a yard of this cloth. The average cost price of the yarn is $0.846 per pound.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.265 per yard, making a total cloth cost of $1.11 per yard. Of this conversion cost, 17.9 cents per yard is for labor.

The weaver's rate is 9.6 cents per yard in the raw for one-loom work, or 4.8 cents per yard when woven as two-loom work. It is here taken in American mills as two-loom work, and the average weave-room cost per finished yard is 11.5 cents. A weaver on a 104-pick loom will produce 24 yards of this cloth in a day. When woven as two-loom work, the daily output would be 45 yards per weaver.

English mills.—Our figures show the cost in England on this fabric to be as follows: The yarn-stock cost per yard is $0.5835, manufacturing or conversion cost is 11.7 cents per yard, making a total cloth cost of $0.701 per yard.

The weaver's rate is given as 1.8 cents per yard in the raw. It is two-loom work, and on Tappet 140-pick looms a weaver will produce 165 yards per loom per week of 55½ hours, or 330 yards per week per weaver, whose earning would therefore be $5.94.

Foreign weaving rates.—In Roubaix, France, the weaver's rate on this sample is 2.03 cents per yard for two-loom work, and a weaver will produce 50 yards per day of 10 hours.

Weavers' rates on this sample were secured from a number of places in Germany, in each of which it was one-loom work, and in making comparisons between these rates the fact of one loom or two looms must not be lost sight of. The one-loom rate in Luckenwalde is 5.3 cents per yard, and a weaver will produce 23 yards in 10 hours. At Forst the rate on looms of 100 picks or over was 4.1 cents, and on looms of 80 picks or under the rate was 4.9 cents per yard. At Spermberg the one-loom rate is 4.1 cents per yard, and a weaver will produce 23 to 26 yards in 10 hours. Very little of this class of goods is made in the Aachen district, but the one-loom rate there is 4.5 cents per yard.

The weaver's rate for two-loom work is 4.6 cents in the United States, as against 1.8 cents in England and 2.03 cents in France.

The one-loom rate in the United States is 9.6 cents per yard, which may be compared with the German one-loom rates of 5.3 cents, 4.9 cents, and in two districts 4.1 cents per yard.

Sample No. 31.

Men's fancy woolen, 56 inches wide inside the selvage, weighing 18 ounces to the yard: The actual loom analysis shows 3,456 warp ends, of which 384 are silk. The width on the loom is 71.7 inches; 44 picks to the inch on the loom. In both warp and weft one-half the threads are white, and one-half black; the white in each case being 3½-run, and the black 2¾-run woolen yarn. The silk is white 2-ply 48.

American mills.—The average price paid for the woolen yarns used was $0.68 per pound, and 1.3 pounds is required to produce a yard of the finished goods, or $0.884 for the yarn, and 4 cents for the silk, giving $0.924 as representing the cost of material in American mills.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.2819 per yard, making a total cloth cost of $1.206 per yard. The actual labor cost is 15.53 cents per yard.

The weaving rate varies from 6.6 cents to 9.24 cents per yard, the typical rate being 8 cents per yard for one-loom work.

English mills.—Our figures show the conversion cost in England on this fabric to be $0.1114 per yard.

The weaver's rate is 3.42 cents per yard for one-loom work, and a weaver on one 75-pick loom will produce 2¼ yards per hour.

French mills.—Our figures show the cost in France on this fabric to be as follows:

The cost of the yarn material per yard of finished cloth is $0.589. The conversion cost is $0.134 per yard, making a total cloth cost of $0.723 per yard.

The weaver's rate on this sample is 3.82 cents per yard in the French mill reporting costs. An independent report on weaver's rates shows 4.2 cents per yard. It is one-loom work in France.

German weaving rates.—German weaving rates on this sample were secured from three cloth centers, namely, Cottbus, Forst, and Spermberg. One rate for the former locality was 5.28 cents per yard, on slow looms upon which a weaver could make from 18.9 to 22 yards of cloth in a day, and earn from $1 to $1.16. On looms 90 to 100 picks a minute, upon which a weaver would produce 31.5 yards in a day, the rate was 4.14 cents. On 80-pick looms the rate was 4.5 cents per yard. In Spermberg the rate was 3.77 cents per yard; a weaver will produce from 2.5 to 2.8 yards in an hour. The mills in this district run 62 hours per week, and a good weaver will earn about $6.

Sample No. 32.

A fancy fine woolen, 56 inches wide and weighing 12 ounces to the yard: The actual loom analysis gives 3,068 warp ends, or 54 to the inch, on a reed width of 70 inches, shrinking to 56 inches in the finished cloth. The warp is 4½-run yarn; the weft is 5½-run yarn, and there are 48 picks, or weft threads, to the inch.

American mills.—It requires 0.887 of a pound of yarn material to make a yard of finished cloth. Of this, 0.468 of a pound is warp yarn, and 0.419 of a pound is weft yarn. Establishments buying their yarn pay practically the same for both warp and weft, namely, 75 cents a pound. Establishments making their yarn had an average cost of 62.8 cents per pound for warp yarn, and 66 cents per pound for weft yarn. The yarn material for a yard of cloth is, therefore, 57 cents for those making their yarn, and 66.5 cents where yarn is purchased in the market.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 29 cents per yard. This gives a total cost of 86 cents per yard for those making their own yarn, and 95.5 cents per yard where yarn is purchased. Analyzing the conversion cost, it is found that the total labor is 18 cents per finished yard.

The weaving rate is 9.3 cents per yard in the raw. It is one-loom work.

English mills.—Our figures show a total cost on this fabric in England of $0.5006. The yarn, which is purchased at 44.3 cents per pound for both warp and weft, gives 39.28 cents per yard as the cost for material. The manufacturing cost is 10.78 cents per yard.

The English weaver's rate is 4.19 cents per yard in the raw. It is one-loom work, and on a 75-pick loom a weaver will produce 110 yards in a week of 55½ hours, earning $4.61.

Sample No. 33.

Covert wool cloth, 54 inches wide, weighing 14 ounces to the yard: The actual loom analysis shows 2,600 warp ends; one-half of these are of 7¼-run plain woolen yarn, and one-half are 6¼-run woolen yarn.

The reed width is 67 inches. The weft is of 6¼-run woolen yarn, and there are 52 picks to the inch.

American mills.—The average stock cost is $0.744 per pound, and it requires 1.01 pounds of material to make a yard of cloth. Therefore the material cost per yard of cloth is $0.751.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as $0.291 per yard, making a total cloth cost of $1.042 per yard. Analyzing this conversion cost it is found that 17.2 cents per yard is for labor.

The average weave-room expense is 9.1 cents per yard of finished cloth. The weaver's rate is 7.8 cents per yard in the raw. This is the one-loom rate, and on a 90-pick loom a weaver will produce 22½ yards in a day of 10 hours.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The cost of the yarn material is $0.5476 per yard; the conversion cost is $0.1357 per yard, making a total cloth cost of $0.6833 per yard.

The weaver's rate is 5.1 cents per yard in the raw. It is one-loom work, and a weaver on a 75-pick loom will produce 91 yards in a week of 55½ hours, and earn $4.64.

Sample No. 34.

Fancy worsted suiting, 56 inches wide inside the selvage, weighing 11.5 ounces to the yard, piece dyed: The actual loom analysis shows 3,664 warp ends on a reed width of 68 inches. The warp is 2-ply worsted yarn No. 36, and the weft is single No. 20 worsted yarn There are 60 picks to the inch.

American mills.—It requires 0.785 of a pound of the yarn material described to produce a finished yard of this cloth. The stock costs an average of $0.856 per pound, making a material cost of $0.672 per yard.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 29.3 cents per yard, making a total of $0.965 per yard of cloth. Analyzing the conversion cost, it is found that 16.11 cents per yard is labor cost.

The weaver's rate in the raw is 4.28 cents per yard. It is two-loom work, and on 125-pick looms a weaver will produce 24 yards per loom per day.

English mills.—Our figures show cost on this fabric in England to be as follows:

Material, $0.3504 per yard of finished cloth; conversion cost, $0.1207, making a total of $0.4711 per yard.

The weaver's rate is 2 cents per yard in the raw. It is two-loom work, and on Tappet 140-pick looms a weaver will produce 131 yards per loom per week of 55½ hours.

French mills.—Our returns were secured from four mills in France on this sample. Two of these give a total cost of $0.505 per yard; another gives $0.5081 as the total cost. The mill giving the highest cost furnishes the greatest detail. This gives yarn material at $0.5218 per pound, and as it requires 0.785 of a pound of yarn to produce a yard of cloth, the stock cost is $0.4096 per yard of finished cloth. The manufacturing or conversion cost is $0.1328 per yard, making a total cost of $0.5424 per yard.

The weaver's rate is 2.4 cents per yard in the raw. It is two-loom work, and a weaver will produce 44 yards on two looms in a day.

Foreign weaving rates.—In Gera, Germany, the two-loom weaver's rate on this sample is 2.8 cents per yard on 120-pick looms, and a weaver will produce 33 yards in 10 hours.

In all other points visited this was one-loom work, and in making comparisons with the rates here given this fact must be borne in mind.

In Verviers, Belgium, the one-loom rate is 7.3 cents per yard. In Germany, the one-loom rate at Forst on 80-pick looms is 6.78 cents, and on looms of 100 picks or over the rate is 5.65 cents per yard. At Aachen the one-loom rate is 6.5 cents per yard, and a weaver will produce 20 yards in a day.

Sample No. 35.

Women's gray worsted serge, 58 inches wide, weighing 12.2 ounces to the yard: The actual loom analysis shows 4,850 warp ends of 2-ply worsted yarn No. 45 on a reed width of 75 inches, shrinking to 58 inches in the finished cloth. The weft is 2-ply worsted yarn No. 45, and there are 63 picks to the inch.

American mills.—The average cost of the yarn stock described is $1.333 per pound. Nine-tenths of a pound of stock material is required to produce a yard of the cloth; the stock cost per yard of cloth is therefore $1.20.

From our figures the American conversion cost from yarn too finished cloth on this fabric may be taken as $0.294 per yard, making a total cloth cost of $1.494 per yard. The labor cost is 16 cents per yard.

The weaver's rate ranges from 4.25 cents to 6.1 cents per yard in the raw. It is two-loom work, and on 105-pick looms a weaver will produce, in a typical American mill, from 20 to 25 yards per loom per day, if there are no extraordinary delays or waits for warp yarn.

French mills.—Our figures show the cost in France on this fabric to be as follows: The yarn cost per yard of finished cloth is $0.7758. The conversion cost is $0.1531, making a total cost of $0.9289 per finished yard of cloth.

The weaver's rate on this sample in Roubaix, France, is 2.322 cents. per yard. It is two-loom work, and a weaver will produce 43 yards in a day of 10 hours.

German weaving rate.—In Gera, Germany, the weaving rate for two-loom work on this sample is 2.19 cents per yard, and a weaver will produce 44 yards in a day on two looms.

Sample No. 36.

Men's blue serge, 56 inches wide finished, 56 picks to the inch, 18 ounces to the yard, piece-dyed: The actual loom analysis shows 3,744 warp ends, or 56 to the inch. The warp and weft are each 2 ply-24 No. worsted yarn.

American mills.—An examination of the schedules secured indicates that it requires 1.35 pounds of yarn material to produce a yard of the finished cloth. The average price of the yarn was $0.93 per pound, giving a stock material cost of $1.256 per yard.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.30 per yard, making a total cloth cost of $1.556 per yard.

An analysis of this conversion cost shows 17.8 cents as the labor cost per yard in a representative mill.

The weaver's rate is 4.7 cents per yard for two loom-work, and on 140-pick looms a weaver will produce 34 yards per loom per day.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The price of the yarn required is given at $0.7016 per pound, and since 1.35 pounds is required for a yard of cloth, the yarn cost per yard is $0.94716. The conversion cost is $0.154 per yard, making a total cloth cost of $1.10 per yard.

The weaver's rate is 1.8 cents per yard. It is two-loom work, and on 145-pick looms an average weaver will produce 3.42 yards per hour on each loom.

Foreign weaving rates.—The weaving rate on this sample at Roubaix, France, was found to be 0.829 of a cent per yard. It is two-loom work, and a weaver will produce 109 yards per day.

This cloth is made in the Glauchau district in Germany, and the weaver's rate is 0.87 of a cent per yard. It is two-loom work, and a weaver will produce 109.3 yards per day and earn 95 cents.

German weaving rates.—Weaver's rates on this sample were secured in various parts of Germany, in all of which it was one-loom work. In Aachen, the principal center for these goods, the weaver's rate varies from 4.8 cents per yard to 5.758 cents per yard. A man will weave 20 yards per day on one loom and earn $1.15 at the 5.758-cent rate.

In Spermberg the rate is 4.8 cents per yard, and a weaver will produce an average of 1.6 yards per hour.

Cloths like the sample were formerly made at Cottbus, and when made there the one-loom rate was 5.758 cents per yard, but more recently this class of goods has not been made at this center.

Sample No. 37.

Men's black clay worsted, 56 inches wide, weighing 16 ounces to the yard: The actual loom analysis shows 4,284 warp ends on a reed width of 68 inches. The warp is 2-ply worsted yarn No. 32. The weft is single number 15, and there are 60 picks to the inch on the loom, or 61 picks per finished inch. It is piece-dyed.

American mills.—It requires 1.1 pounds of yarn material to produce a yard of this cloth. The average price of the warp yarn, as shown from the schedules, is $0.914 per pound; of the weft yarn, $0.835 per pound. There is slightly more weight in the warp than in the weft. The stock cost of the 1.1 pounds of yarn material is $0.96 per yard of finished cloth.

From our figures, the American conversion cost from yarn to finished cloth on this fabric may be taken as $0.30 per yard, making a total cloth cost of $1.26 per yard. The labor cost is 13.6 cents per yard.

The weaver's rate is 5.3 cents per yard in the raw for two-loom work, and on 100-pick looms the average weaver will produce 25 yards per loom per day. The one-loom rate on this sample ranges from 9 cents to 11 cents per yard.

English mills.—Our figures show the cost in England on this fabric to be as follows:

Taking the warp yarn at the price of $0.66 per pound, the weft yarn at $0.61 per pound in the proportion which they bear to the 1.1 pounds of yarn material required for a yard of cloth, we have a yarn material cost of $0.6985 per yard of finished cloth. The manufacturing or conversion cost is 14.36 cents per yard, making a total cloth cost of $0.8421 per yard on this sample.

The English weaving rate on the sample is 2 cents per yard. It is two-loom work, and on 135-pick looms a weaver will produce 2.3 yards per loom per hour.

Foreign weaving rates.—The weaver's two-loom rate on this sample in Roubaix, France, is 2.47 cents per yard, and a weaver will produce 44 yards in a day of 10 hours.

In Aachen, Germany, the one-loom rate on this sample is 5.65 cents per yard. In Luckenwalde the one-loom rate is 6.68 cents per yard; and in Spermberg the rate varies from 5.14 cents to 5.39 cents per yard, according to the speed of the loom.

As both the American one-loom and two-loom rates have been stated, the proper comparison here can be safely made.

Sample No. 38.

Fancy worsted suiting, 56 inches wide inside the selvage, weighing 11.5 ounces to the yard: The actual loom analysis shows 4,112 warp ends on a reed width of 68.5 inches. Of these warp ends, 2,096 are 2-ply worsted yarn No. 40, and 2,016 ends are 2-ply 40 worsted and silk. The weft is single 22 worsted yarn, and there are 60 picks to the inch. It is piece dyed.

American mills.—It requires 0.754 of a pound of the yarn described above to produce a yard of this cloth. The yarn stock costs $1.134 per pound, and the stock cost for a yard of cloth is $0.855.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 31.1 cents, making a total cost of $1.166 per finished yard. The labor cost is 16.9 cents per yard.

The weaving rate in the raw ranges from 11.4 cents to 12.1 cents per yard for one-loom work.

For two-loom work the rate ranges from 5.3 cents to 6.6 cents per yard. For reasons which will appear, both of these systems and rates must be borne in mind. A weaver on one 90-pick loom will produce 18 yards in a day. On two 110-pick looms a good weaver will produce 35 yards in a day.

English mills.—Our figures show cost on this fabric in England to be as follows:

Taking the stock material at the given price of $0.8304 per pound, the stock cost of the yarn in a yard of cloth would be $0.6261, on a basis of 0.754 of a pound of the stock for a yard of the finished cloth. The conversion cost is $0.1165; the total cost of production being, therefore, $0.7426 per yard.

The weaver's rate in the raw is 2.456 cents per yard. It is two-loom work, and on 135-pick looms a weaver will produce 135 yards per loom per week of 55½ hours.

Foreign weaving rates.—In Roubaix, France, the weaver's rate is 2.3 cents per yard. It is two-loom work, and a weaver will produce 44 yards per day of 10 hours, and earn $1.01.

Up to this point the weavers' rates in England and France may be compared with the American two-loom rate of 5.3 cents per yard. In all other points visited in Europe this was one-loom work, and hence the following rates must be compared with our 12-cent one-loom rate.

In Verviers, Belgium, it is one-loom work, and the rate is 7 cents per yard.

The rates secured from the cloth centers of Germany were all for one-loom work, and are as follows:

In Luckenwalde 7.4 cents per yard, and a weaver will produce 13 yards in a day. In Forst 5.14 cents per yard on looms of 90 picks and over, and 6.17 cents on the slower looms. At Aachen, on 110-pick looms, the rate is 6.17 cents per pard, and a weaver will produce 22 yards per day. At Spermberg the rate is 5.4 cents, and 18.5 yards is considered a good day's work.

Sample No. 39.

Men's serge, 56 inches wide and weighing 11 ounces to the finished yard: The actual loom analysis shows 4,850 warp threads or ends on a reed width of 70 inches, shrinking to 56 inches in the finished cloth. There are 65 picks, or threads of weft yarn, to the inch. The yarn for both warp and weft is single worsted yarn No. 25. It is piece dyed.

American mills.—It requires .78 of a pound of yarn material to produce a yard of this cloth. Taking $0.95 per pound as the average price of such yarn, gives $0.74 as the cost of the yarn material.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 32 cents per yard, making a total cloth cost of $1.06 per yard. Analyzing the conversion cost, it is found that 19 cents per yard is for labor.

The weaving rate is 6.35 cents per yard on the loom, or when paid by the thousand picks, the rate is 2.5 cents per thousand. This is a two-loom rate, and on 110-pick looms a weaver will ordinarily produce from 30 to 35 yards per day.

French mills.—Our figures show the cost on this fabric in France to be as follows:

The yarn material cost is taken at $0.486 per yard of finished cloth. The conversion cost is $0.1743, making a total cloth cost of $0.6603 for the finished yard.

The weaving was done in this factory on one loom, and a weaver's rate was 2.22 cents per thousand picks, or 5.195 cents per yard in the raw, making a weaving cost of 5.26 cents per finished yard.

In Roubaix, France, where the cloth is woven on two looms, the weaver's two-loom rate is 3 cents a yard, and a weaver will produce on two looms of the type used in that locality from 30 to 35 yards in a day, earning from 90 cents to $1.05.

Belgian weaving rates.—In Verviers, Belgium, a strictly one-loom district, the rate per yard is 6.32 cents, and a weaver will produce one one loom of the low speed common in that district from 17 to 18 yards a day.

Sample No. 40.

Women's brown broadcloth, 54 inches wide and weighing 11 ounces to the yard: The actual loom analysis shows 3,932 warp ends, including selvage; warp ends are single No. 30. The width on the reed is 71½ inches, shrinking to 54 inches in the finished cloth. The weft is 4$\frac{11}{16}$ run, or 25 cut woolen yarn, and there are 60 picks to the inch. It is piece dyed.

American mills.—The average stock cost per pound of the yarn described is $0.733. The amount required to produce a yard of cloth is 0.96 of a pound. The total stock cost is, therefore, $0.704 per yard.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 35.9 cents per yard, making a total cloth cost of $1.063 per yard. The labor cost is 19.9 cents per yard. The weave-room expense, including weaving, of course, is 7.2 cents per yard.

The weaver's rate is 5.4 cents per yard for two-loom work. It is usually woven by women, and on 115-pick looms a woman will produce 20 yards per loom per day, assuming a 65 per cent efficiency.

German mills.—Our figures show the cost on a similar fabric in Germany to be as follows:

The material cost for a yard of this cloth is $0.553; the conversion cost is $0.221, making a total cost per yard of this cloth of $0.774.

The two-loom weaver's rate is 3.54 cents per yard in the raw for 100-pick looms. The average weaver will produce 30 yards per day of 10 hours on such looms.

Foreign weaving rates.—At Aachen, Germany, goods like the sample are woven almost exclusively by women on "overpick" looms speeded to 125 picks per minute. The rate is 2.5 cents per yard, and the maximum earnings of women on this work is reported to be $0.62 per day.

The weaver's rate in Gera is 2.8 cents per yard for two-loom work, usually 120-pick looms.

The weaver's rate on this sample in Roubaix, France, is 1.838 cents per yard. It is two-loom work, and 55 yards are considered a good day's work.

Sample No. 41.

Black thibet cloth, 56 inches wide, weighing 17 ounces to the yard: The actual loom analysis shows 3,304 warp ends on a reed width of 80 inches, shrinking to 56 inches in the finished cloth. There are 58 picks, or weft threads, to the inch. It is made of 4½-run yarn and is piece dyed.

American mills.—It requires 1.22 pounds of yarn material to produce a yard of the cloth. The yarn cost is $0.64 per pound, making a yarn-material cost of $0.7808 per yard of cloth.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as $0.36, making a total cloth cost of $1.141 per yard. Of the 36 cents conversion cost, 18.1 cents per yard is for labor.

The weaver's rate in the raw is 6.38 cents per woven yard. This amounts to 7.37 cents per yard of finished cloth. This is a two-loom rate, and the cost here is given on a two-loom basis. Cloth of this character, however, is usually one-loom work, and a weaver on one

90-pick loom will produce 21 yards per day. The one-loom rate varies from 8.5 cents to 11 cents per yard.

English mills.—Our figures show the cost in England on this fabric to be as follows: Taking the yarn cost at $0.406 per pound and applying the loom analysis of 1.22 pounds of yarn material to a yard of finished cloth, we have $0.49532 as the cost of the yarn material. The manufacturing cost is $0.2053 per yard, making a total cloth cost of $0.701 per finished yard.

This cloth calculation is based on one-loom work for the weaver, and the weaving rate on one loom is 4 cents per yard in the raw, making a weaving cost per finished yard of 4.78 cents. It is one-loom work in England, and on an 80-pick loom a weaver will produce 104 yards in a week of 55½ hours and earn $4.16.

Sample No. 42.

Men's light-weight blue serge, 58 inches wide and weighing 13 ounces to the yard: The actual loom analysis shows 4,830 warp ends on a reed width of 70 inches. There are 65 picks, or weft threads, to the inch; both warp and weft are of 2-ply worsted yarn No. 45. It is piece dyed.

American mills.—The schedules show that 0.9 of a pound of yarn material is necessary to make a yard of cloth. The average cost of the yarn material is $1.172 per pound, making a stock cost for a yard of cloth of $1.055.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 36.2 cents per yard, making the total cost of the finished cloth $1.417 per yard. Analyzing the conversion cost, it is found that 21.5 cents is labor cost. The weave-room expense is 9 cents per finished yard of cloth.

The weaver's rate in the raw runs from 5.25 to 7.7 cents, 5.75 cents being the typical rate. It is two-loom work, and these rates are based on two looms per weaver.

English mills.—Our figures show a cost on this fabric in England to be as follows: Taking the yarn material at $0.7756 per pound, and 0.9 of a pound being required for a yard of cloth, the stock cost is $0.698; the conversion cost is 15.2 cents per yard, making a total cloth cost of $0.85 per finished yard.

The weaver's rate in the raw is 2.2 cents per yard; the total weave-room cost is 3.914 cents per yard. It is two-loom work, and on 125-pick looms a weaver will produce 120 yards per loom per week of 55½ hours.

French mills.—Our figures of costs on this sample were secured from six mills in France. The average cost of yarn material was $0.689 per pound, making a cost for material of 62 cents per yard of cloth. The manufacturing or conversion cost is 14.58 cents, making a total cost of $0.766 per yard.

The weaving rate is 2.7 cents per yard in the raw; the total weaving expense is 3.01 cents per finished yard. It is two-loom work, and a weaver will produce 38 yards in a day of 10 hours, earning $1.03.

German mills.—Our figures show that for a similar cloth in German mills the cost of the yarn material is 78 cents per yard of finished cloth. The manufacturing or conversion cost is 24.1 cents, making a total cost of $1.021 per yard.

The weaver's two-loom rate is 4.8 cents on 100-pick looms, and on two such looms the average weaver will produce 21 yards in a day and earn $1.01.

In Cottbus, Germany, the weaver's rate on one loom was 5.8 cents, and a weaver would produce 17 yards in a day of 10 hours.

In Aachen, Germany, on slow looms the rate was 6.9 cents per yard, one-loom rate, and a weaver would produce 13 yards in a day.

Sample No. 43.

Women's broadcloth, 54 inches wide and weighing 10.5 ounces to the yard: The actual loom analysis shows 3,332 warp ends, including selvage, of single worsted yarn No. 30, on a reed width of 67.5 inches. The weft is of 3¾ run or 20 cut woolen yarn, and there are 53 picks to the inch.

American mills.—The average stock cost is $0.798 per pound. It requires 0.927 of a pound to produce a yard of the cloth, making a total yarn stock cost of $0.74 per yard.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 36.4 cents per yard, making a total cloth cost of $1.104 per yard. The labor cost is 17.8 cents per yard.

The one-loom weaver's rate is 7.9 cents per yard in the raw; the two-loom rate is 3.8 cents per yard. A weaver will produce 20 yards per loom per day.

French mills.—Our figures show the cost on this fabric in France to be as follows:

The conversion cost on this fabric in French mills is 20.47 cents per finished yard.

The weaving rate is 3.5 cents per yard in the raw as a one-loom rate, or 1.54 cents as a two-loom rate. On two looms a weaver will produce 60 yards in 10 hours.

Foreign weaving rates.—The comparative weaver's rate was secured in two of the two-loom districts in Germany as follows:

On 100-pick looms, at a point near Aachen, the weaver's rate is 3.17 cents per yard in the raw, and the weave-room expense at this point was 4.37 cents per yard. The two-loom rate on this sample in the Gera-Greiz district is 2.27 cents per yard, and a weaver on 120-pick looms will produce 45 yards in a day of 10 hours.

Sample No. 44.

Woolen overcoating, 60 inches wide and weighing 24 ounces to the yard: The actual loom analysis shows 6,336 warp ends of 4½ run woolen yarn on a reed width of 78 inches, shrinking to 60 inches in the finished cloth. The weft is also 4½ run woolen yarn, and there are 50 picks to the inch.

American mills.—It requires 1.78 pounds of stock material, as described above, to make a yard of this cloth. The average stock cost per pound is $0.728, making a total stock cost of $1.296 per yard of cloth.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 36.5 cents per yard, making a total cloth cost of $1.661 per yard. Of this 36.5 cents conversion cost, 21.1 cents is the cost of labor per yard. The weaving expense per finished yard is 11.2 cents.

The weaver's rate in the raw is 9.6 cents per yard. It is one-loom work.

English mills.—Our figures show cost on this fabric in England to be as follows:

Taking the cost of the yarn material as described above at $0.4866 per pound in English mills, and taking 1.78 pounds as necessary to produce a yard of finished cloth, the stock cost per yard is $0.8662. The conversion cost is 18.77 cents per yard, making a total cloth cost of $1.054 per yard of finished cloth.

The weaver's rate per yard is 3.86 cents in the raw. It is one-loom work, and on 80-pick looms a weaver will produce 115 yards in a week of 55½ hours and earn $4.44.

French mill.—The conversion cost on this cloth in a French mill is $0.1812 per yard.

Sample No. 45.

Men's fancy half-worsted suiting, 56.5 inches wide, weighing 13.2 ounces to the yard: The actual loom analysis shows 4,320 warp ends; 4,104 of these are 2-ply worsted yarn No. 48, and 216 are of 2/18 silk. The filling or weft is 6-run woolen yarn. There are 62 picks to the inch.

American mills.—It requires 0.974 of a pound of yarn material to make a yard of the finished cloth. The average stock cost is $1.164 per pound, making a total stock cost for a yard of the finished cloth of $1.134.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.37 per yard, making a total cloth cost of $1.504 per yard.

Analyzing this conversion cost, it is found that 27.5 cents per yard is for labor. The weaver's rate per yard in the raw is 13.2 cents as a one-loom rate. In one instance a two-loom rate of 6.9 cents was given, but this is practically always one-loom work. On one loom an average American weaver will, without extraordinary delays, produce 22 yards in a day.

English mills.—Our figures show the cost in England on this fabric to be as follows:

Taking the yarn material going into this cloth at an average price of $0.805 per pound, the stock material for a finished yard of cloth would cost $0.7841. The conversion cost is $0.1671 per yard, making a total cost, upon this estimate of stock cost, of $0.9512 per yard.

The weaver's rate is 6.16 cents per yard in the raw on a basis of one-loom work, although it is quite generally two-loom work in England. On a basis of two looms, a weaver will produce, on Tappet 130-pick looms, 109 yards per loom per week of 55½ hours.

Foreign weaving rates.—The one-loom rate on this sample in Roubaix, France, is 6.7 cents, and a weaver will produce 16 yards in ten hours.

In Verviers, Belgium, the rate is 7.3 cents per yard.

In Cottbus, Germany, this is one-loom work, and a weaver will produce from 16 to 18 yards in a day of ten hours. The rate there is 7.17 cents per yard.

Sample No. 46.

Uniform cloth, indigo wool dyed, 57 inches wide, weighing 21 ounces to the yard: The actual loom analysis shows 3,240 warp ends, including selvage, on a reed width of 91 inches, shrinking to 57 inches in the finished cloth. There are 56 picks to the inch in the loom, or before shrinking, but this fulls up to 74 picks per inch in the finished goods. Both warp and weft are of 3½ run woolen yarn. It is dyed in the wool.

American mills.—The average cost of the stock material is $0.735 per pound, and 1.8 pounds of yarn material is required to produce a yard of cloth. The total stock cost is therefore $1.323 per yard.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.386, making a total cloth cost of $1.709 per yard. Analysing this conversion cost, it is found that 22.7 cents is for labor.

The weaving cost on the finished yard in a typical mill is 14.7 cents. The weaver's rate, as is well understood, is in all cases on the cloth in the raw, or directly from the loom. In this case that rate would be on 56 picks to the inch, but in cloths of this type the woven yard shrinks materially in the finish; thus the weaver's rate per yard in the raw on this cloth is 10.7 cents per yard, this being based on 56 picks to the inch. Since it fulls to 74 picks per inch, or a difference of 32 per cent, the weaving rate alone, as applied to the finished yard, would be 13.424 cents per yard. Of course, such variations between the weaver's rate at the loom and the finished cloth can occur only in cases of such cloths as the sample. It is one-loom work, and on 100-pick looms a weaver will produce, without extraordinary delays, 20.8 yards in 10 hours.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The price of the yarn material is $0.5075 per pound, and as 1.8 pounds is required for a yard of cloth, the stock cost per yard is $0.9135. The conversion cost is $0.1861, making a total cloth cost of $1.0996 per yard.

The weaving cost is 8 cents per yard of finished cloth. The weaver's rate is 5.7 cents per yard in the raw, based upon the 56 picks per inch as woven in the loom, the 8 cents representing the weaver's rate and other weave-room costs on the shrunken cloth, or after it has been fulled up to 74 picks per inch. It is one-loom work, and on a 80-pick loom (the kind generally used for this class of goods) a weaver will produce 79 yards in a week of 55½ hours, and earn $4.50.

Sample No. 47.

Black unfinished worsted, 56 inches wide, weighing 15 ounces to the yard, or, if London shrunk, 16 ounces to the yard: The actual loom analysis shows 4,256 warp ends on a reed width of 76 inches, shrinking to 56 inches in the finished cloth. There are 76 picks to the inch. Both warp and weft are of 2-ply worsted yarn No. 40. It is piece dyed.

American mills.—It requires 1.048 pounds of yarn material to produce a yard of this cloth; 0.418 of a pound for the warp and 0.63 of a pound for the weft. The average cost of the yarn used was $1.07 per pound; the yarn material therefore costs $1.12 per yard of cloth.

From our figures the American conversion cost—from the yarn to the finished cloth—on this fabric may be taken as $0.382 per yard, making a total cloth cost of $1.503 per yard.

Of this conversion cost 20.5 cents per yard is for labor. The weaving rate for two-loom work ranges from 6.2 cents to 6.82 cents per yard on the newer type of looms to 7 cents on the older looms; 6.4 cents may be taken as the typical weaving rate.

English mills.—Our figures show the cost in England on this fabric to be as follows:

Taking $0.7206 per pound as the price of the yarn entering into this cloth gives $0.7552 as the cost of the yarn material in a finished yard. The conversion cost is $0.16 per yard, making a total cloth cost of $0.9152 per yard.

The weaver's rate is 2.6 cents per yard. It is two-loom work, and on 135-pick looms a weaver will produce 113 yards per loom per week of 55½ hours.

German mills.—On a cloth very similar to the sample in construction, but carrying a somewhat higher grade of finish, our figures show that the cost in a German mill was as follows:

The stock material cost $0.806 per yard of finished cloth; the manufacturing cost was $0.23, making a total factory cost of $1.036 per yard.

The weaver's rate per yard in the raw was 2.89 cents on two-loom work, the weaving expense per finished yard being 3.6 cents. The finishing cost on this goods was 11.8 cents per yard, but, as noted above, this was on a somewhat higher standard of finishing. It is two-loom work, and on 75-pick looms a weaver will produce 35.6 yards per day and earn $1.03.

Sample No. 48.

Men's unfinished worsted, 56 inches wide, weighing 14 ounces to the yard: The actual loom analysis shows 5,100 warp ends on a reed width of 77 inches, shrinking to 56 inches in the finished cloth. There are 66 picks to the inch in the raw, shrinking to 63 in the finished cloth. the warp is 2-ply worsted yarn No. 45, and the weft is single 22. It is piece dyed.

American mills.—The average cost of the warp yarn is $1.064 per pound; of the weft yarn, $0.892 per pound. The average cost of the yarn in the cloth is $0.987 per pound, and as 0.97 of a pound of yarn is required to produce a finished yard of cloth, the yarn material cost for a yard of cloth is $0.957.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.392, making a total cloth cost of $1.349.

Of this conversion cost 19.1 cents per yard is for labor.

The weaving rate is 6 cents per yard in the raw. It is two-loom work, and on 110-pick looms a weaver will, without extraordinary delays, produce 18 yards per loom per day.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The cost of the yarn material for a finished yard of cloth is $0.6266. This is based on wool of a 2-ply 46 warp and a single 22 weft. The manufacturing cost is $0.1924 per yard, making a total cloth cost of $0.8190 per yard.

The weaving rate on this sample is 2.582 cents per yard. It is two-loom work, usually put on 135-pick looms, and on such looms a weaver will produce 116 yards per loom per week of 55½ hours.

French mills.—Our figures show the cost in France on this fabric to be as follows:

The yarn material cost is $0.4794 per yard of finished cloth; the conversion cost is $0.2288, making a total cloth cost of $0.7082 per yard.

The weaving rate is 2.74 cents per yard. It is two-loom work, and an average weaver will produce on the more up-to-date looms, or in other words in the better mills, 38 yards in a day.

German mills.—Our figures show the cost in Germany on a fabric of similar construction to be as follows:

The yarn material for a finished yard was $0.81. The manufacturing cost, including all charges for general expense, depreciation, etc., was $0.25 per yard, making a total cloth cost of $1.06 per yard.

The weaver's rate for two-loom work was 3.04 cents per yard, or 1.52 cents per 1,000 picks. This is on 100-pick looms, and a weaver will produce 34 yards of cloth in a day of 10 hours.

In Aachen, which is a one-loom district, the one-loom weaving rate on this cloth is 2.618 cents per 1,000 picks, or 6.5 cents per yard. A weaver on the better, or 90-pick looms, will produce 22 yards in a day.

Belgian weaving rates.—At Verviers, Belgium, the one-loom rate is 6.13 cents per yard. On the slow looms of this district a weaver will produce 17 yards in a day of 11 hours.

Sample No. 49.

Men's serge, 56 inches wide, weighing 13 ounces to the yard: The actual loom analysis shows 4,280 warp ends on a reed width of 69 inches, shrinking to 56 inches in the finished cloth. There are 58 picks, or weft threads, to the inch. The yarn for both warp and weft is 2-ply worsted yarn No. 38. It is piece-dyed.

American mills.—The average cost of the stock yarn material is $1.04 per pound, and 0.9 of a pound of material is required to produce a finished yard of cloth, making a total stock cost of $0.936 per yard.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.396, including general expense, making a total cloth cost of $1.332 per yard.

Analyzing this conversion cost of 39.6 cents, it is found that 21.3 cents per yard is for labor.

The weaver's rate is 5.6 cents per loom yard. It is two-loom work in American mills, and a weaver on 110-pick looms will produce, without unusual delays, 23 yards per loom per day.

English mills.—Our figures show the cost in England on a fabric of similar structure but less expensive finish to be as follows:

The yarns used were two-ply Botany wool No. 38, and the yarn material cost $0.6129 per yard of finished cloth. The manufacturing cost is $0.1512, giving a total cloth cost of $0.7641 per finished yard.

The weaver's rate is 2.657 cents per yard. It is two-loom work, and on 135-pick looms a weaver will produce 136 yards per loom per week.

French mills.—Our figures show the cost in France on this fabric to be as follows:

The cost of the yarn material per yard of finished cloth is taken as $0.5931. The manufacturing cost is $0.1428, making a total cloth cost of $0.7359 per yard.

Analysing the manufacturing cost it is found that 10.74 cents per yard is direct labor cost, while 3.54 cents is general expense.

The weaver's rate on this sample in Roubaix, France, is 2.329 cents per yard. It is two-loom work, and a weaver will ordinarily produce 43 yards per day on two looms.

German mills.—The cost of a very similar cloth was secured from a German mill, the principal difference in the two cloths being that the German cloth was yarn dyed, and not piece dyed, so that the dyeing cost is in the material and not in the conversion cost, and while this would not affect the total it would raise the material cost 5 or 6 cents per yard of cloth. The yarn cost is $0.759; the conversion cost is 0.246 cents, per yard; making a total factory cost of $1.005 per yard.

The character of the finish on this cloth is exceptionally high, the finishing cost alone being 10.8 cents per yard.

The weaving rate is 1.52 cents per 1,000 picks, or 3.08 cents per yard at the loom. It is two-loom work, and on 100-pick looms a weaver will produce 34 yards of cloth per day.

Foreign weaving rates.—The weaving rate on this sample in the Gera district of Germany is 3 cents per yard for two-loom work, these being 120-pick looms. A weaver will produce 42 yards in 10 hours under good conditions.

At Spermberg, a one-loom district, the rate varies from 4.7 cents to 5.2 cents per yard, according to the speed of the loom.

At Aachen the one-loom rate is 4.97 cents per yard and the two-loom rate is 3.48 cents per yard.

The Cottbus rate on this sample, one 80-pick loom work, is 6 cents per yard in the raw, and a weaver on such loom will ordinarily produce 19 yards in a day.

At Verviers, Belgium, the weaver's rate on this sample is 5.6 cents per yard, one-loom work on 70-pick looms.

Sample No. 50.

Men's fancy worsted suitings, 56 inches wide, weighing 12 ounces to the yard: The actual loom analysis shows 4,401 warp ends on a reed width of 66 inches; 4,301 are worsted yarn 2-ply No. 40; 100 ends are silk partly 2/18 and partly 2/72. There are 64 picks to the inch, of 2-ply worsted yarn No. 40. One-half, or 32 picks, are hard twisted. It is woven from yarn-dyed material.

American mills.—It requires 0.931 of a pound of the material described above to make a yard of the finished cloth. Taking the stock material cost at $1.121, which was the average for all establishments reporting, the stock cost for a yard of cloth is $1.044.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.402 per yard, making a total cloth cost of $1.446 per yard.

Analysing this conversion cost it is found that 25.3 cents per yard is for labor, the weaving expense being 14 cents per finished yard. The weaver's rate in the raw ranges from 10.1 cents to 11.6 cents per yard, 10.4 cents being the usual and typical rate for one-loom work. On one 104-pick loom a weaver will produce 21 yards in a day.

German mills.—On a cloth of a similar construction in a German mill, the cost of the yarn material for a yard of the finished cloth was $0.89. The conversion cost was $0.278, making a total factory cost of $1.168 per yard.

Of the 27.8 cents conversion cost, 6.3427 cents was weaving cost per finished yard, the loom rate being 5.76 cents. Mending and burling cost 2.178 cents, and finishing 10.6 cents per yard. The character of the finish on the German cloth was somewhat better than that of the sample. This was woven on one 75-pick loom, and the weaver produced 19.7 yards per day. If woven on 100-pick looms in the same establishment the weaver's rate per yard in the raw would be 5.01 cents.

Weaver's rates on this sample were secured from other German centers. At Aachen one firm pays 6 cents, another firm pays 6.58 cents per yard for one loom work. The average output of a good weaver in the Aachen mills is 21.8 yards per day of 10 hours. At Cottbus, on slower looms, the rate given was 7.6 cents, 17 to 19 yards being produced per weaver per day.

Foreign weaving rates.—The weaver's rate in Roubaix, France, is 5.294 cents per yard for one-loom work, and a weaver will produce 21.8 yards per day of 10 hours.

In Verviers, Belgium, where these goods are produced on one loom and slower looms, the rate is 7.34 cents per yard, and a good weaver will produce 16 yards per day.

Sample No. 51.

Men's worsted, 56 inches wide, weighing 17 ounces to the yard: The actual loom analysis shows 7,620 warp ends on a reed 66 inches wide, including selvage, shrinking to 56 inches in the finished cloth. The warp is single-thread worsted yarn No. 30, and the weft is single 12's worsted yarn. There are 64 picks to the inch in the raw, or on the loom, fulling to 68 in the finished cloth. It is piece dyed.

American mills.—The yarn material cost for a yard of finished cloth is $1.186, 1.3 pounds of yarn being required for a yard of cloth.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.603 per yard, making a total cloth cost of $1.789 per yard. The labor cost is 31.3 cents per yard.

The weaver's rate is 3.5 cents per 1,000 picks, or 8.05 cents per yard at the loom. It is one-loom work. The weaving cost per finished yard, that is to say after the shrinking, is 9.1 cents.

German mills.—Our figures show the cost in German mills on a similar fabric to be as follows:

The cloth taken for comparison in this case was of such similar construction that the variations would not materially affect the cost. It is, for instance, 58.5 inches wide, weighs 17.5 ounces to the yard, has 7,950 warp ends on a reed width of 66 inches, and has 69 picks to the inch. Taking this, then, for comparison, we find that the material costs $0.865 per yard, the manufacturing costs $0.32 per yard, making a net factory cost of $1.185. This includes all allowances for depreciation and general expense, but not the cost of selling the product. The cost of selling, which is not included in the American cost, is eliminated here for purposes of comparison; it amounts to 5.45 cents per yard, making a cloth cost of $1.24 per yard, sold but not delivered. The net selling price at the mill is $1.42 per yard.

The weaver's rate is 2.45 cents per 1,000 picks, or 5.635 cents per yard as a one-loom rate on 100-pick looms, and working on such a loom a weaver will produce 18 yards per day of 10 hours.

In Aachen, Germany, the one-loom rate is 6 cents per yard on looms running from 90 to 100 picks, and a weaver was said to produce 19 yards in a day.

French weaving rate.—In Roubaix, France, the weaver's rate on this sample is 4.94 cents per yard on one-loom work, and a weaver will produce from 19 to 20 yards in a day.

Sample No. 52.

Silk mixed worsted, 58 inches wide, weighing 14.2 ounces to the yard, yarn dyed and London shrunk: The actual loom analysis shows 7,744 warp ends on a reed width of 66 inches. Of the warp ends, 3,872 are of 2-ply worsted yarn No. 60; 3,124 are silk twist 2/60 and single size; 178 ends are of 2-ply 48 worsted yarn; and 572 ends are of 30/2 silk. The weft is 2-ply worsted yarn No. 48, and there are 62 picks to the inch.

American mills.—The stock material described above costs an average of $1.48 per pound, and as 1.016 pounds of material is required to produce a yard of the finished goods, the stock cost per yard is $1.504.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.632 per yard, making a total cloth cost of $2.136 per yard. Analyzing this conversion cost it is found that 37 cents per yard is for labor. The typical weave-room expense is 16.5 cents per yard.

The weaver's rate per yard in the raw ranges from 11 cents to 13.5 cents, 12.5 cents being the typical rate. It was one-loom work.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The yarns going to make up the warp of this cloth as described in a preceding paragraph have an average cost of $1.03 per pound; the weft yarn costs $0.892 per pound. The weight of the warp yarn used is not quite twice that of the weft yarn, but applying the proportions of each that go to make the 1.016 pounds of yarn necessary to produce a yard of the cloth, it gives a stock cost per yard of finished cloth of $1.0197. The conversion cost is $0.2376, making a total cost of $1.257 per yard.

The weaver's rate per yard in the raw is 7.3 cents. It is one-loom work, and on a Dobby 150-pick loom a weaver will produce 91 yards in a week of 55½ hours, and earn $6.64.

Foreign weaving rates.—The weavers' rates on this sample in other parts of Europe were found to be as follows:

In Verviers, Belgium, the one-loom rate is 7.75 cents per yard.

In Aachen, Germany, on slow looms, the rate is 7.43 cents per yard, and a weaver will produce 16 yards in a day of 10 hours. On looms of 100 picks or more per minute the rate is 6.37 cents per yard in Aachen, and a weaver will produce from 19 to 21 yards in a day of 10 hours.

Sample No. 53.

Men's unfinished worsted, 58 inches wide, weighing 14.5 ounces to the yard: The actual loom analysis shows 11,760 warp ends on a reed width of 75 inches, shrinking to 58 inches in the finished cloth. The warp is 2-ply worsted yarn No. 85. The weft is a single yarn No. 45, and there are 110 picks to the inch. It is piece dyed.

American mills.—The weight of the warp per yard of cloth is 0.6 of a pound; the weft, 0.4 of a pound, making 1 pound of yarn material to a yard of finished cloth. The average cost of the warp yarn per pound, as shown on the schedules, was $1.70; of the weft yarn, $1.30. The yarn material for a yard of cloth costs therefore $1.54.

From our figures, the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.693 per yard, making a total cloth cost of $2.233 per yard.

Analyzing this conversion cost it is found that 39.8 cents per yard is labor cost.

The weaving rate on this sample is 19 cents per yard, one-loom work.

English mills.—Our figures show the cost in England on this fabric to be as follows:

The yarn material costs $0.8946 per yard; the conversion cost is $0.339 per yard, making a total cloth cost of $1.234 per yard.

The English weaver's rate is 10.1 cents per yard. It is one-loom work, and on a 130-pick loom a weaver will produce 59 yards in a week of 55½ hours, and earn $5.96.

French mills.—Our figures show the cost in France on this fabric to be as follows:

The cost of the yarn material is $0.80 per yard of cloth in the raw. The manufacturing cost is $0.3119, making a total of $1.1119 per woven yard, as is the custom in the French system of costing, the shrinkage bringing the cost of the finished yard of cloth up to $1.223.

The weaving rate is 3.72 cents per 1,000 picks on slow looms, or 14.88 cents per loom yard. The weaving cost on a finished yard is 15.42 cents. This is for one-loom work.

The weaver's rate on this sample at Roubaix, France, is 9.4 cents per yard for two-loom work. It is, however, generally one-loom work.

German mills.—Our figures show the cost in Germany, on a cloth of very similar construction but somewhat higher grade of finish, to be as follows:

The cost of the yarn material is $0.9795 per yard; the cost of conversion is $0.417 per yard, making a total factory cost of $1.3965 per yard.

Analyzing the conversion cost, it is found that the weaving rate per yard in the loom is 10.52 cents for one-loom work, making a weaving cost of 13.8 cents per yard of finished cloth.

The finishing, which, as stated above, is of a very high order, costs 14.3 cents per yard.

When woven on one 75-pick loom the rate is, as stated, 10.52 cents per yard, or 2.63 cents per 1,000 picks. A weaver will produce 10 yards per day, or 4,000 picks per hour, and earn slightly over 10 cents per hour. The two-loom rate in the same German mill is 1.79 cents per 1,000 picks, or 7.16 cents per yard, always on 75-pick looms. Faster looms are not used in this mill on goods like the sample.

As this sample is not made on two looms in the United States, the comparison here is 4.5 cents per 1,000 picks, or 19 cents per yard, in the United States, as against 2.63 cents per 1,000 picks, or 10.52 cents per yard, in the German mill.

Weaver's rates on this sample were secured in other parts of Germany, namely, Spermberg and Aachen. This grade of cloth is made in Aachen on 100-pick looms as one-loom work, and the rate is 10.4 cents per yard. A weaver will ordinarily produce 9.6 yards per day of 10 hours, earning $1 per day.

At Spermberg the slower looms (67 to 75 picks per minute) are used on goods like the sample, and the rate is 9.9 cents per yard. On these looms 9 yards is considered a good day's work.

Belgian weaving rate.—At Verviers, Belgium, the one-loom rate on slow looms is 14.5 cents per yard, 7 yards being an average output for an 11-hour day.

Sample No. 54.

Worsted cheviot, having a finished width of 57.5 inches, weighing 12.2 ounces to the yard, yarn dyed: The actual loom analysis shows 2,748 warp ends on a reed width of 72 inches. Of these warp ends, 2,692 are 2-ply worsted yarn No. 28 and 56 are of silk 17/2. The weft is of 2-ply worsted yarn No. 28, and there are 47 picks to the inch.

American mills.—The amount of the yarn necessary to produce a yard of this cloth is stated to be 0.868 of a pound, and since the average cost of this stock for all mills reporting was $0.909, the yarn stock cost per yard of finished cloth is $0.79.

From our figures the American conversion cost—from yarn to finished cloth—on this fabric may be taken as $0.417, making a total cloth cost of $1.207 per yard.

Analyzing this conversion cost it is found that 24.5 cents per yard is for labor. The weaving expense is 12 cents per finished yard. The weaver's rate for one-loom work ranges from 8 cents to 9.9 cents, the typical rate being 9.3 cents per yard in the raw. It is ordinarily one-loom work, only one establishment reporting producing this as two-loom work, and here the rate was 4 cents a yard. A weaver in an American mill on 106-pick loom will produce without extraordinary delays or waits for yarn 28 to 30 yards in a day.

Foreign weaving rates.—Weavers' rates on this sample were secured in various parts of Europe as follows:

In England the weaver's rate is 4.2 cents per yard in the raw for one-loom work. A weaver on one 110-pick Dobby loom will produce 147 yards in a week of 55½ hours and earn $6.17.

The one-loom rate in Roubaix, France, is 4.4 cents per yard, and on one loom of the type prevailing in that district a weaver will produce 25 yards in a day and earn $1.10.

The one-loom rate in Verviers, Belgium, is 5.3 cents per yard, the weaver earning $1 per day on this goods.

The rate in Cottbus, Germany, is 5.3 cents per yard, and a weaver on one loom will produce 21 yards, or, in exceptional cases, 23.5 yards per day of 10 hours.

At Forst, Germany, the rate on 80-pick looms was 4.8 cents per yard; on 100-pick looms, 4 cents per yard. On the slow looms

23.6 yards was considered a good day's work, and the output on the speedier looms was approximately one-fifth more per day.

At Spermberg, Germany, one firm was paying 4.027 cents per yard and another firm was paying 4.228 cents per yard on substantially the same character of looms.

This sample was found to be woven as one-loom work in all the countries of Europe visited, and in all but one plant investigated in the United States, in which, as indicated above, it was two-loom work. The weaver's rates for one-loom work in all the countries visited except Belgium are practically one-half that paid in the typical mill in the United States. On the slow looms in Verviers and Cottbus the rate is slightly more than one-half the American rate.

Sample No. 55.

A fancy woolen cloth, 56 inches wide weighing 16.1 ounces to the yard. The actual loom analysis shows 2,372 warp ends on a 74-inch width of reed, the cloth shrinking to 56 inches in the process of finishing. Of these warp ends, 2,132 are of 2⅝ run woolen yarn; 240 ends are of twisted woolen 6-run yarn with silk 2-ply yarn No. 40. The weft is of 2⅝ run woolen yarn, and there are 39 picks to the inch.

American mills.—It requires 1.2 pounds of yarn material to make a yard of the cloth; the average stock cost per pound is $0.49, making a total stock cost of $0.588 per yard of cloth.

From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 28.1 cents per yard, making a total cloth cost of $0.869 per yard. The labor cost is 16.7 cents per yard; the weaving expense is 11 cents per finished yard.

The weaver's rate is 7.6 cents per yard in the raw, and a weaver on a 96-pick loom will produce, without extraordinary delays, 23 yards in 10 hours.

English mills.—In England the weaver's rate is 3.12 cents per yard in the raw, and the total weave-room expense is 4.32 cents per yard of finished cloth. It is one-loom work, and a weaver on a 75-pick loom will produce 135 yards in a week of 55½ hours.

Foreign weaving rates.—The weaver's rate on this cloth in Roubaix, France, is 3.17 cents per yard in the raw. It is one-loom work, and a weaver will produce 27 yards in a day of 10 hours.

In Spermberg, Germany, the weaver's rate on this sample is 3.5 cents per yard on 90-pick looms, and a weaver will produce from 28 to 30 yards in 10 hours.

In Forst, Germany, on looms of less than 80 picks, such as were usually employed on this work, the one-loom rate is 4.2 cents per yard, and 25 yards was considered a good day's work.

In Crimmitschau, the weaver's rate is 4.5 cents per yard, the daily output 27 yards.

Cards containing samples of all the cloths just described, and giving details of construction, are included in this report, and accompany it, for the use of Congress.

SUMMARY OF CONVERSION COSTS.

The accompanying table presents a summary of the information given in detail in relation to these samples of cloth. It shows conversion cost from yarn to finished cloth in the different countries and compares the American cost with that for the same cloth in England and France, and the cost of similar cloth in Germany:

Conversion cost, from yarn to finished cloth.

Sample No.	Kind of cloth.	American.	English (same cloth).	French (same cloth).	German (similar cloth).
1	F	$0.080	$0.0401		
2	G	.083	.0415		
3	F	.089	.0488		
4	G	.106	.065		
5	F	.118	.0556	$0.0654	
6	F	.127	.0572		
7	F	.132	.0614		
8	E	.133	.0661		
9	C	.145	.0689		
10	F	.165	.0698	.0814	
11	C	.165	.081		
12	B	.168	.0777	.083	
13	C	.174	.0863		
14	C	.178	.0777		
15	E	.190	.0853	.0866	
16	E	.212	.1107		
17	E	.212	.1067	.1485	
18	C	.213	.094		
19	B	.215	.091		
20	E	.216	.1034		
21	C	.217	.089		
22	B	.222	.1193		
23	B	.235	.104		
24	G	.240	.0985		
25	C	.245	.1136		
26	G	.249	.109		
27	E	.250	.1043	.1255	
28	C	.254	.098		
29	B	.258		.1022	
30	D	.265	.117		
31	C	.282	.1114	.134	
32	C	.290	.1078		
33	E	.291	.1357		
34	D	.293	.1207	.1328	
35	E	.294		.1531	
36	B	.300	.154		
37	A	.300	.1436		
38	D	.311	.1165		
39	B	.320		.1743	
40	E	.359			$0.221
41	A	.360	.2053		
42	B	.362	.152	.1458	.241
43	E	.364		.2047	
44	A	.365	.1877	.1812	
45	D	.370	.1671		
46	A	.386	.1861		
47	A	.382	.16		.23
48	A	.392	.1924	.2288	.25
49	B	.396	.1512	.1428	.246
50	D	.402			.278
51	A	.603			.32
52	D	.632	.2376		
53	A	.693	.339	.3119	.417

A. Staples and piece dyes.
B. Serges.
C. Fancy woolens.
D. Fancy worsteds.
E. Women's wear.
F. Light weight women's wear.
G. Cotton warp.

The following table separates the different types of fabrics heretofore described and gives the comparative conversion cost separately for each type:

Conversion cost, from yarn to finished cloth.

STAPLES AND PIECE DYES.

Sample No.	American.	English (same cloth).	French (same cloth).	German (similar cloth).
37	$0.300	$0.1436	....	....
41	.360	.2053	....	....
44	.365	.1877	.1812	....
46	.386	.1861	....	....
47	.382	.16	....	$0.23
48	.392	.1924	.2288	.25
51	.603	....	....	.32
53	.693	.339	.3119	.417

SERGES.

12	$0.168	$0.0777	$0.083	....
19	.215	.091	....	....
22	.222	.1193	....	....
23	.235	.104	....	....
29	.258	....	.1022	....
36	.300	.154	....	....
39	.320	....	.1743	....
42	.362	.152	.1458	$0.241
49	.396	.1512	.1428	.246

FANCY WOOLENS.

9	$0.145	$0.0689	....	....
11	.165	.081	....	....
13	.174	.0863	....	....
14	.178	.0777	....	....
18	.213	.094	....	....
21	.217	.089	....	....
25	.245	.1136	....	....
28	.254	.098	....	....
31	.2819	.1114	.134	....
32	.290	.1078	....	....

FANCY WORSTEDS.

30	.265	.117	....	....
34	.293	.1207	$0.1328	....
38	.311	.1165	....	....
45	.370	.1671	....	....
50	.402	....	....	$0.278
52	.632	.2376	....	....

WOMEN'S WEAR.

8	$0.133	$0.0661	....	....
15	.190	.0853	$0.0866	....
16	.212	.1107	....	....
17	.212	.1067	.1485	....
20	.216	.1034	....	....
27	.250	.1043	.1255	....
33	.291	.1357	....	....
35	.294	....	.1531	....
40	.359	....	....	$0.221
43	.364	....	.2047	....

LIGHT-WEIGHT WOMEN'S WEAR.

1	$0.080	$0.0401	....	....
3	.089	.0488	....	....
5	.118	.0556	$0.0654	....
6	.127	.0572	....	....
7	.132	.0614	....	....
10	.165	.0698	.0814	....

Conversion cost, from yarn to finished cloth—Continued.

COTTON WARPS.

Sample No.	American.	English (same cloth).	French (same cloth),	German (similar cloth).
2	$0.083	$0.0415	....	....
4	.106	.065	....	....
24	.240	.0985	....	....
26	.249	.109	....	....

The following table shows what proportion is labor cost of the conversion cost of turning cloth into yarn, taking up singly the samples of American fabrics heretofore considered:

AMERICAN MANUFACTURE.

Comparative conversion and labor cost, from yarn to finished cloth.

Sample No.	Kind of cloth.	Conversion cost.	Labor cost.
1	F.......	$0.080	$0.052
2	G.......	.083	.058
3	F.......	.089	.050
4	G.......	.106	.062
5	F.......	.118	.074
6	F.......	.127	.078
7	F.......	.132	.092
8	E.......	.133	.082
9	C.......	.145	.107
10	F.......	.165	.088
11	C.......	.165	.100
12	B.......	.168	.095
13	C.......	.174	.121
14	C.......	.178	.095
15	E.......	.190	.103
16	E.......	.212	.133
17	E.......	.212	.110
18	C.......	.213	.130
19	B.......	.215	.119
20	E.......	.216	.110
21	C.......	.217	.134
22	B.......	.222	.109
23	B.......	.235	.154
24	G.......	.240	.170
25	C.......	.245	.154
26	G.......	.249	.158
27	E.......	.250	.123
28	C.......	.254	.150
29	B.......	.258	.145
30	D.......	.265	.179
31	C.......	.282	.155
32	C.......	.290	.180
33	E.......	.291	.172
34	D.......	.293	.161
35	E.......	.294	.160
36	B.......	.300	.178
37	A.......	.300	.136
38	D.......	.311	.169
39	B.......	.320	.190
40	E.......	.359	.199
41	A.......	.360	.181
42	B.......	.362	.215
43	E.......	.364	.178
44	A.......	.365	.211
45	D.......	.370	.275
46	A.......	.386	.227
47	A.......	.382	.205
48	A.......	.392	.191
49	B.......	.396	.213
50	D.......	.402	.253
51	A.......	.603	.313
52	D.......	.632	.370
53	A.......	.693	.398
54	C.......	.417	.245
55	C.......	.281	.167

A. Staples and piece dyes.
B. Serges.
C. Fancy woolens.
D. Fancy worsteds.
E. Women's wear.
F. Light-weight women's wear.
G. Cotton warp.

GERMAN AND AMERICAN COSTS.

The immediately preceding section of this report deals with American and foreign costs on fabrics made in the United States. This is now supplemented with costs on foreign-made goods of the type which we import. In the one case we have shown the cost on American goods if made abroad. In the following section is shown, on such fabrics as we import, first, the cost of production in the foreign mill making the goods; secondly, the cost of these imported goods if made in American mills. For this purpose a number of high-grade, finely finished foreign samples, made in German mills, were submitted with the foreign-loom analysis to a number of American mills for estimates on the cost of producing the same fabrics in their own mills. In other words, the same methods were adopted to secure American costs on German fabrics as had been used in securing American and foreign costs on American samples; and for this purpose German fabrics of first-class material and high-grade finish—such as are more commonly imported—were utilized. The estimates of American mills on these cloths were based upon a full analysis; the character of the finish was shown by actual samples. In all cases the conversion cost is the cost from yarn to finished cloth.

The results are submitted below:

Sample A.

Men's worsted suiting, 58 inches wide, weighing 12.6 ounces to the yard. The actual loom analysis shows 4,200 warp ends of 2-ply worsted yarn No. 46 on a reed width of 72 inches, shrinking to 58 inches in the finished cloth. It is slub or top dyed. The weft yarn is a twist of No. 28 and No. 46 worsted yarn, and there are 55 picks to the inch, or 1,980 picks to the yard.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn stock cost is $0.782 per yard of finished cloth. The manufacturing or conversion cost is $0.283 per yard, making a total cost of $1.065 per yard. The selling expense is 5.431 cents per yard, making a total cost of the goods sold of $1.119. The net selling price of the goods at the factory is $1.25 per yard.

The weaving expense is 6.66 cents per yard; the finishing expense is 10.887 cents per yard of cloth.

The weaver's rate per yard in the raw is 5.19 cents, or 2.62 cents per 1,000 picks. It is one-loom work. The sample submitted was made as one-loom work. On a 75-pick loom an average weaver in the mill will produce 20 yards in a day and earn $1.04. It should be noted, however, that on 100-pick looms the one-loom rate for the same fabric is 2.28 cents per 1,000 picks; the two-loom rate for 75-pick looms is 1.74 cents per 1,000 picks; and the two-loom rate on 100-pick looms is 1.52 cents per 1,000 picks. This last is the rate with which to compare the American rate.

American mills.—The yarn stock cost per yard of finished cloth on this sample is $1.215 in an American mill.

From our figures the American conversion cost, from yarn to finished cloth, on this fabric may be taken as $0.495 per yard. This includes selling expense, making a total cost of the cloth sold of $1.71

per yard. The weave-room expense per finished yard is 5.9 cents; the finishing cost is 19.9 cents per yard.

The weaver's rate is 2.6 cents per 1,000 picks, or 5.2 cents per yard in the raw on two-loom work.

The German factory cost is $1.065, or, including selling expense, $1.119 per yard; the American cost is $1.71. The German selling price is $1.25 net f. o. b. mill. The present tariff is $1.02 per yard.

Sample B.

Men's worsted suiting, 58 inches wide, weighing 14.8 ounces to the yard. The actual loom analysis shows 4,200 warp ends on a reed width of 72 inches. The warp is of 2-ply 46's and a 28 and 46 twisted together. The weft is a 28 and a 46 yarn twisted together. There are 55 picks to the inch.

German mills.—Our figures show the cost in Germany on this fabric to be as follows: The yarn stock cost per yard of finished cloth is $0.8908. The manufacturing or conversion cost, including general expense, but exclusive of selling expense, is $0.2776 cents per yard, making a total factory cost of $1.168 per yard. The selling and administrative expense is 5.43 cents per yard, making a cost of $1.222 for this cloth finished and sold. The net selling price f. o. b. mill is $1.34 per yard. The weave-room expense is 6.34 cents per yard; the finishing expense is 10.6 cents per yard.

The weaver's one 75-pick loom rate in the raw is 2.62 cents per 1,000 picks, or 5.19 cents per yard. On one-loom work and on one 75-pick loom a weaver will produce 20 yards in a day. The two-loom rate on 75-pick looms is 1.74 cents per 1,000 picks, or 3.4 cents per yard. The 100-pick loom rate is 2.28 cents per 1,000 picks for one loom, and 1.52 cents per 1,000 picks for two-loom work. Since there are essentially 2,000 picks in a yard, the yardage rate would be twice this amount.

American mills.—The cost of the yarn stock per yard of finished cloth in an American mill is $1.36.

From our figures the American conversion cost, from yarn to finished cloth, on this fabric may be taken as $0.50 per yard, making a total cloth cost of $1.86 per yard. The weave-room cost is 10.25 cents per yard.

The weaver's two-loom rate is 6.7 cents per yard in the raw.

The German cost on this sample at the factory is $1.168 per yard; the American cost, as shown by the estimate above, is $1.86 per yard. The German selling price f. o. b. mill is $1.34.

The present import duty on this cloth is $1.13 per yard.

Sample C.

Black drape worsted, 58 inches wide, weighing 13.5 ounces to the yard. It is piece dyed. The actual loom analysis shows 10,725 warp ends on a reed width of 72 inches, shrinking to 58 inches in the finished cloth. The warp is 2-ply worsted yarn No. 85. The weft is single 43's worsted yarn, and there are 91 picks to the inch.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn-stock cost of material entering into this cloth is $0.9795. The total conversion cost is 48.85 cents per yard, making a total factory cost of $1.468 per yard exclusive of administrative and selling expense. These add 5.43 cents per yard, making a total cost of the goods sold $1.522; the price net at the mill is $1.60. The weave-room cost on this sample is 11.8 cents per yard, finishing is 14.3 cents per yard, and piece dyeing 4.7 cents per yard.

The weaver's rate is 2.69 cents per 1,000 picks, or 8.81 cents per yard in the raw. As one-loom work and on a 75-pick loom a weaver will produce 12 yards in a day. This cloth is never put on looms running at a high speed in the factory making the sample. However, when a weaver operates two looms, the rate on this cloth is 1.79 cents per 1,000 picks, or 5.86 cents per yard.

American mills.—The yarn stock cost per yard of finished cloth is $1.462 in an American mill. From our figures the American conversion cost from yarn to finished cloth on the fabric may be taken as 78.42 cents per yard, including administrative and selling expense, making a total cost of goods at the factory, but sold, of $2.2462. The weave room cost is 13.4 cents per yard; the finishing cost is 22 cents per yard, and piece-dyeing cost is 8.9 cents per yard.

The weaving rate is 3.35 cents per 1,000 picks, or 10.97 cents per yard in the raw. This in the United States would always be one-loom work, and it is doubtful whether looms of over 90 picks would be used on such material; on such a loom 15 to 17 yards would be a good day's work for a weaver.

Briefly, the German cost on this sample is $1.468 as a factory cost, $1.522 including selling expense, with a selling price at the mill of $1.60 per yard. The American cost, including selling expense, is $2.2462. The present tariff duty on this cloth is $1.25 per yard.

Sample D.

Men's fine worsted cloth, 58 inches wide, weighing 16.4 ounces to the yard. It is piece-dyed: The actual loom analysis shows 7,800 warp ends on a 69-inch reed, shrinking to 58 inches in the finished cloth. The warp is of single-ply worsted 31s yarn left twist. The filling is woolen yarn, single ply 11½, and there are 58 picks to the inch.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn material for this sample costs $0.838. The conversion cost is 43.6 cents per yard, making a total factory cost of $1.274 per yard. The administrative and selling expense is 10.8 cents per yard, making a total cost of the goods sold, but at the factory, of $1.382. That the administrative and selling expense here includes a profit is evidenced by the fact that this gives a cost price precisely equal to the selling price at the mill. This rate of 10.8 cents for administrative and selling expense is just twice the general cost of this item as figured on most of the goods produced by the mill. If we give the mill the average of selling and administrative cost, it would be a total cost here of $1.328. The net selling price is $1.38. The weave room expense is 6.83 cents per yard; the finishing cost is 18.4 cents per yard; the piece-dyeing cost is 5.9 cents per yard.

The weaver's rate in the loom is 2.62 cents per thousand picks, or 5.47 cents per yard in the raw. It is one-loom work, and an average weaver will produce 18.7 yards per day of 10 hours on a 75-pick loom. Fast looms are not commonly used on this sample, nor is this cloth usually made as two-loom work. A weaver, however, might operate two looms, one running on this cloth, another on an easier weave, in which case the rate would be 1.74 cents per 1,000 picks, or 3.63 cents per yard.

American mills.—The yarn stock cost of material for a yard of this sample in an American mill is $1.4433. From our figures the American conversion cost from yarn to finished cloth on this fabric, exclusive of selling expense but including general expense, may be taken as 71 cents per yard, making a total cost of $2.1533 per yard. The selling expense being estimated at 8 cents per yard, the cost of this fabric at the factory, but sold, is $2.2333. The weave room expense is 7.4 cents per yard of finished cloth; the finishing expense 21.2 cents, and piece dyeing 12.8 cents pér yard.

The weaver's rate is 3 cents per thousand picks, or 6.26 cents per yard in the raw. This is a two-loom rate, comparable with the 3.48 cents per yard rate in German mills. On two looms a weaver will produce 25 yards in a day.

Summarizing, the German cost on this sample is $1.274 as a factory cost; $1.328 sold. The net selling price is $1.38. The American cost, including selling expense, is $2.2333. The present tariff duty on this cloth is $1.21 per yard.

Sample E.

This is a fancy worsted, 58 inches wide, weighing 15.5 ounces to the yard. It is yarn dyed, or wool dyed. The actual loom analysis shows 3,750 warp ends on a reed width of 68 inches. The warp is two-ply worsted yarn number 46 and two-ply worsted yarn number 28 twisted together. The weft is of the same character of yarns, and there are 51 picks to the inch, 1,836 picks to the yard.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn material costs $0.829 per yard of cloth. The conversion cost is $0.246 per yard, making a total factory cost of $1.075 per yard. The selling expense is 5.4 cents per yard, making the total cost of the goods sold but not delivered $1.129 per yard. The selling price f. o. b. mill is $1.36 per yard. The weaving cost per yard of finished cloth is 4.7 cents, the finishing cost is 10.9 cents per yard.

The weaver's rate in this case was 2.45 cents per 1,000 picks, or 4.5 cents per yard as a single loom rate on a 100-pick loom. A weaver on such a loom will produce 23 yards in a day of 10 hours.

This cloth is woven indiscriminately as one or two loom work, and on 75 or 100 pick looms. The rate on one 75-pick loom is 2.81 cents per 1,000 picks; on two 75-pick looms, 1.88 cents per 1,000 picks. The rate on one 100-pick loom is 2.45 cents per 1,000 picks; on two 100-pick looms, 1.64 cents per 1,000 picks.

American mills.—The cost of the yarn material entering into this cloth is $1.15.

From our figures the American conversion cost, from yarn to finished cloth, on this fabric may be taken as $0.4126 per yard, making a total cloth cost of $1.5626 per yard. The weaving cost per finished yard is 7.6 cents.

The weaver's rate per yard in the raw is 7.3 cents. This would ordinarily be one-loom work, and a weaver would ordinarily produce 25 yards in a day.

Briefly, the German factory cost on this sample is $1.075 per yard, or, sold and ready for delivery, $1.129 per yard. The f. o. b. mill price is $1.36. The American cost is $1.5626 per yard.

The present tariff duty on this cloth is $1.16 per yard.

Sample F.

This is a men's heavy blue serge, 57 inches wide, weighing 17.7 ounces to the yard. It is wool dyed. The actual loom analysis shows 3,200 warp ends on a reed width of 70 inches, shrinking to 57 inches in the finished cloth. The warp is 2-ply worsted yarn, No. 22. The weft is of the same material, and there are 51 picks to the inch, or 1,836 picks to the yard.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn stock material costs $0.9714 per yard. The conversion cost is $0.3698 per yard, making a total factory cost of $1.341 per yard. Administrative cost and selling expense add 5.4 cents to this, making a cost of $1.395 per yard of cloth sold but not delivered. The net selling price is $1.57 per yard. The weave-room expense is 5.147 cents per yard; the finishing cost is 20.8 cents per yard.

The weaver's one-loom rate on 75-pick looms is 2.57 cents per 1,000 picks, or 4.72 cents per yard of cloth in the raw. The average weaver will produce 22 yards in a day. Only 75-pick looms are used in the manufacture of this cloth, but where a weaver is operating two 75-pick looms, whether or not both are being operated upon this particular kind of cloth, the rate is 1.71 cents per 1,000 picks, or 3.14 cents per yard.

American mills.—The cost of the yarn stock material on this sample is $1.655 per yard of finished cloth.

From our figures the American conversion cost, from yarn to finished cloth on this fabric may be taken as $0.666 per yard, making a total cloth cost of $2.321 per yard.

The weaver's rate is 6.3 cents per yard in the raw. It is two-loom work.

The German cost on this sample is $1.34 as a factory cost; $1.395 sold. The net factory price is $1.57 per yard. The American factory cost is $2.321 per yard.

The present rate of duty on this cloth is $1.33 per yard.

Sample G.

Men's blue serge, 57 inches wide, weighing 14.8 ounces to the yard. The actual loom analysis shows 5,680 warp ends on a reed width of 67 inches, shrinking to 57 inches in the finished cloth. The warp is two-ply worsted yarn No. 44. The weft is of the same material, and there are 81 picks to the inch, or 2,916 picks to the yard.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn stock for a yard of this cloth costs $0.8392. The conversion cost is 31.48 cents per yard, making a total factory cost of

$1.154. There is a selling and administrative expense of 5.4 cents per yard, making the cloth cost, sold at the factory, $1.208. The net selling price of the cloth is $1.44 f. o. b. mill. The weave-room expense per yard of finished cloth is 6.81 cents, and the cost of finishing is 13.78 cents per yard.

The weaver's rate is 2.05 cents per 1,000 picks, or 5.98 cents per yard in the raw. The sample is woven on a 100-pick loom, one loom being attended by each weaver. The average weaver will produce 17.2 yards per day of 10 hours. This sample has a two-loom rate of 1.36 cents per 1,000 picks on 100-pick looms. There is also a 75-pick loom rate of 2.33 cents per 1,000 picks as a one-loom rate, and 1.55 cents per 1,000 picks as a two 75-pick loom rate.

American mills.—The stock-yarn material for a yard of this fabric in an American mill costs $1.4509. From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 52.69 cents per yard, making a total factory cost of $1.9778. The total weaving expense is 11.3 cents per finished yard.

The weaving rate is 10.1 cents per yard in the raw. This is a one-loom rate, and 20 yards would be a good day's work for a weaver.

Briefly, the German factory cost on this cloth is $1.154; the cost of the goods sold, but not delivered, is $1.208; the net cash selling price f. o. b. mill is $1.44. The American cost on this cloth is $1.9778. The present tariff duty on this sample is $1.18 per yard.

Sample H.

Light-weight, skein-dyed, fancy worsted, 58 inches wide, weighing 9.3 ounces to the yard. The actual loom analysis shows 3,680 warp ends on a reed width of 69 inches, shrinking to 58 in the finished cloth. Both warp and weft are of two-ply worsted yarn No. 46. There are 47 picks to the inch, or 1,692 picks to the yard.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn material used in this sample costs $0.5597 per yard in German mills. The manufacturing or conversion cost is 28.56 cents per yard, making a total factory cost of $0.8453 per finished yard, exclusive of selling expense, which adds 5.44 cents per yard, making a net cost of the cloth sold, but not delivered, of $0.8997. The selling price net f. o. b. mill is $1.06 per yard. The weaving cost on this sample is 5.6 cents per yard; finishing cost is 10.9 cents per yard.

The weaving rate is 2.81 cents per 1,000 picks on a single 75-pick loom, or 4.75 cents per yard. On a 75-pick loom an average weaver will produce 21.6 yards per day of 10 hours.

The two 75-pick loom rate is 1.88 cents per thousand picks. The rate on one loom of 100 picks a minute efficiency is 2.45 cents per 1,000 picks, and the two-loom rate on 100-pick looms is 1.64 cents per 1,000 picks.

American mills.—The yarn material for a yard of this cloth costs, in American mills, $0.878. From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 47 cents per yard, making a total factory cost of $1.348 per yard. The cost at the factory, including selling expense, is $1.398 per yard.

The two-loom weaving rate is 2.6 cents per 1,000 picks, or 4.4 cents per yard. No one-loom rate was reported, and this rate should properly be compared with the two 100-pick loom rate, which is 1.64 cents per 1,000 picks, or 2.77 cents per yard.

The German factory cost is $0.845, or including selling expense $0.8997. The f. o. b. factory price is $1.06. The American factory cost is $1.348, or including selling expense $1.398. The present tariff on this cloth is $0.83 a yard.

Sample I.

Unfinished black worsted, 58 inches wide, weighing 13.5 ounces to the yard. The actual loom analysis shows 4,100 warp ends on an 81-inch reed, shrinking to 58 inches in the finished cloth. The warp is a single 32 and 45 twisted together for 3,890 ends, while 270 ends are two-ply worsted yarn No. 75. The weft is a 32 and a 45 twisted together. There are 51 picks to the inch, or 1,836 picks to the yard. It is piece dyed.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The stock yarn material costs $0.7669 per yard of finished cloth. The conversion cost is 26.51 cents per yard, making a total factory cost of $1.032 per yard. The selling expense is 5.4 cents per yard, bringing this up to $1.086 as the cost of the cloth sold but not delivered. The net selling price f. o. b. mill is $1.36 per yard. The weave-room expense on this sample is 3.58 cents per yard; the finishing is 11.9 cents per yard; and the piece dyeing is 4.7 cents per yard. The weaver's rate is 1.49 cents per 1,000 picks, or 2.74 cents per yard. This is a two-loom rate, and in the factory making the sample only the slow, or 75-pick, looms are used on this material. A weaver on two 75-pick looms will produce 37.2 yards per day.

American mills.—The stock material for a yard of this cloth costs $1.156. From our figures the American conversion cost from yarn to finished cloth on the fabric, including general expense but excluding selling expense, may be taken as 47 cents per yard, making a net factory cost of $1.626. The selling expense is estimated to be 5.8 cents per yard, making a cost at the factory, but sold, of $1.684 per yard.

The weaving rate for two looms is 2.7 cents per 1,000 picks, or 4.96 cents per yard in the raw, making the weaving expense 5.6 cents per woven yard of cloth. The cost of finishing is 20.3 cents per yard.

The German factory cost is $1.032; cost sold, but not delivered, $1.086; selling price f. o. b. mill, $1.36. The American factory cost is $1.626; including selling expense, $1.684. The present tariff duty on this cloth is $1.10 a yard.

Sample J.

Fancy worsted, 58 inches wide, weighing 11.3 ounces to the yard. The actual loom analysis shows 4,600 warp ends on a reed width of 67 inches. There are 58 picks to the inch, or 2,088 picks to the yard. The warp and weft are both 2-ply worsted yarn No. 46. There are 80 silk-effect threads of 2-ply No. 200.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn-stock material for a finished yard of cloth is $0.6971. The conversion cost is $0.3014 per yard, making a total factory cost of $0.9985. The selling expense is 5.4 cents per yard, making a total cost of the cloth sold, but not delivered, of $1.052 per yard. The selling price f. o. b. mill is $1.19. The present tariff duty on this cloth is $0.95 per yard. The weaving cost is 6.67 cents per finished yard, and the finishing is 10.87 cents per yard.

The weaver's rate is 2.45 cents per 1,000 picks, or 5.12 per yard, on single 100-pick looms. On such looms the average weaver in the mill will produce 20 yards in a day. The two-loom rate on 100-pick looms is 1.64 cents per 1,000 picks. On 75-pick looms the one-loom rate is 2.81 cents, and the two-loom rate 1.88 cents per 1,000 picks.

American mills.—The yarn-stock cost per yard of finished cloth is $0.95. From our figures the American conversion cost, from yarn to finished cloth, on this fabric may be taken as 52.1 cents per yard, making a total cost of $1.471 per yard. The weave-room expense is 9.45 cents per yard.

The exact weaving rate is not reported.

Sample K.

Fancy worsted, 58 inches wide, weighing 12.6 ounces to the yard. It is slub or top dyed. The actual loom analysis shows 4,250 warp ends on a reed width of 73 inches, shrinking to 58 inches in the finished cloth. The warp yarn is of 2-ply worsted No. 46, and the weft is a twist of No. 28 and No. 46 worsted yarns. There are 55 picks to the inch, or 1,980 picks to the yard.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn cost per yard of cloth is $0.7592; the conversion cost is $0.2875 per yard, making a total factory cost of $1.047 per yard. The selling expense is 5.4 cents per yard, making a net cost of the cloth sold but not delivered, of $1.10 per yard. The selling price f. o. b. mill is $1.25 per yard. The weaving cost is 6.49 cents per yard. The finishing cost is 10.8 cents per yard.

This sample was woven as one-loom work, and the one-loom rate on 75-pick looms was 2.62 cents per 1,000 picks, or 5.19 cents per yard. On one 75-pick loom a weaver will produce 20 yards per day.

This cloth is woven variously as one or two loom work, and on 75 or 100-pick looms. The one 75-pick loom rate has been given above. The two 75-pick loom rate is 1.74 cents per 1,000 picks. When woven on 100-pick looms the rate is 2.28 cents for one-loom work, and 1.52 cents per 1,000 picks for two-loom work.

American mills.—The yarn material for a yard of this cloth costs $1.26 in American mills.

From our figures, the American conversion cost, from yarn to finished cloth, on this fabric may be taken as $0.522 per yard, making a total cost of $1.782 per yard. The weave-room expense is 7.2 cents per yard. The finishing cost is 19 cents per yard.

The weaver's two-loom rate is 6.7 cents per yard in the raw. This should be compared with the two-loom rate on 100-pick looms in Germany, which is 3 cents per yard in the raw.

Briefly, the German cost on this fabric is $1.047 per yard in the factory; $1.10 per yard sold. The selling price f. o. b. mill is $1.25 per yard. The American factory cost is $1.782 per yard.

The present rate of duty is $1.02 per yard.

Sample L.

This is a fancy blue serge, 58 inches wide, weighing 10.3 ounces to the yard. The actual loom analysis shows 5,800 warp ends on a reed width of 67 inches, shrinking to 58 inches in the finished cloth. The warp is 2-ply worsted yarn No. 62, and 2-ply No. 46; 5,232 ends of the former and 568 ends of the latter. The weft is 2-ply No. 62, except the stripe, which is 2-ply No. 46. There are 74 picks to the inch, 2,664 picks to the yard.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn material for a yard of cloth costs $0.689. The conversion cost is $0.31 per yard, making a total factory cost of $0.999 per yard. The selling expense is 5.4 cents per yard, making a total cost of the goods sold but not delivered of $1.053 per yard. The selling price f. o. b. mill is $1.23 per yard. The weaving cost per yard of finished cloth is 6.3 cents; the cost of finishing is 14.2 cents per yard.

This sample was woven on 75-pick looms, two looms to the weaver, and the two-loom rate is 1.74 cents per 1,000 picks, or 4.64 cents per yard. On two 75-pick looms an average weaver will produce 22.1 yards per day of 10 hours.

This cloth may be woven indiscriminately as one or two loom work, and on 75 or 100 pick looms, as the convenience or necessity of the establishment may require. On 100-pick looms the one-loom rate is 2.28 cents per 1,000 picks; the two-loom rate is 1.52 cents per 1,000 picks. On 75-pick looms the one-loom rate is 2.62 cents per 1,000 picks, and the two-loom rate is 1.74 cents per 1,000 picks.

As there are 2,664 picks in a yard, the yard rate at any of the foregoing rates may be readily calculated.

American mills.—The yarn-stock cost per yard of cloth is $1.08.

From our figures, the American conversion cost, from yarn to finished cloth, on this fabric may be taken as $0.558 per yard, making a total cloth cost of $1.638 per yard.

The weaving cost is 9.56 cents per yard, and the weaver's rate is 8.14 cents per yard in the raw.

The German cost is $0.999 per yard as a factory cost, $1.053 as the total cost sold, but not delivered. The selling price is $1.23 per yard. The American cost is $1.638 per yard.

The present tariff duty is $0.94 per yard on this cloth.

Sample M.

Fancy worsted, 58 inches wide, weighing 14.8 ounces to the yard. It is slub or top dyed. The actual loom analysis shows 4,255 warp ends of two-ply worsted yarn number 46, and a twist of 28 and 46 yarns. The weft is number 28 and number 46 worsted yarns twisted together, and there are 55 picks to the inch, 1,980 picks to the yard.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn material costs $0.903 per yard; the conversion, $0.275 per yard, making a total factory cost of $1.178 per yard. The selling expense is 5.4 cents per yard, making the cost of the cloth sold but not delivered $1.232 per yard. The selling price f. o. b. mill is $1.34 per yard. The weave-room cost per yard of finished cloth on this sample is 6.43 cents; the cost of the finishing is 10.59 cents per yard.

In this particular case this sample was woven as one-loom work on 75-pick looms, and the weaver's rate was 2.62 cents per 1,000 picks, or 5.19 cents per yard of woven cloth in the raw. On one 75-pick loom the average weaver will produce 19.8 yards per day.

This cloth may be woven either as one or two loom work. On 75-pick looms the one-loom rate is 2.62 cents, and the two-loom rate 1.74 cents per 1,000 picks. On 100-pick looms the one-loom rate is 2.28 cents, and the two-loom rate 1.52 cents per 1,000 picks.

American mills.—The yarn stock cost per yard is $1.36.

From our figures, the American conversion cost, from yarn to finished cloth, on this fabric may be taken as $0.486, making a total cloth cost of $1.846 per yard. The weaving cost per yard of finished cloth is 7.8 cents.

The weaver's rate is 7.2 cents per yard in the raw for two-loom work. The rate which should be compared with this is the two-loom rate on 100-pick looms, which is 1.52 cents per 1,000 picks, or 3 cents per yard in the raw.

The German cost on this sample is $1.178 per yard as a factory cost and $1.23 per yard as the cost ready to deliver. The selling price is $1.34. The American cost on this sample is $1.846 per yard. The difference in factory costs, including materials, is $0.668.

At the present rate of tariff duty this cloth pays $1.13 per yard.

Sample N.

Fancy worsted, 58 inches wide, weighing 13.9 ounces to the yard. It is yarn or wool dyed. The actual loom analysis shows 6,480 warp ends on a reed width of 67 inches. The warp is 2-ply worsted yarn No. 46; the weft is 2-ply worsted yarn No. 46. There are 51 picks to the inch, or 1,836 picks to the yard.

German mills.—Our figures show the cost in Germany on this fabric to be as follows:

The yarn cost per yard of cloth is $0.897. The conversion cost is 25.7 cents per yard, making a total factory cost of $1.154 per yard. The selling expense is 5.4 cents per yard, making a total cost of the cloth, sold but not delivered, of $1.208 per yard. The selling price f. o. b. mill is $1.30 per yard. The weaving cost of the finished cloth is 5.07 cents; the finishing cost is 10.9 cents per yard.

The weaver's rate on two-loom work is 1.74 cents per 1,000 picks, or 3.19 cents per yard in the raw. This is on 75-pick looms, and a weaver will produce 32 yards per day of 10 hours.

This cloth may be woven either as one or two loom work. The one-loom rate is 2.62 cents per 1,000 picks on 75-pick looms, or 2.28 cents per 1,000 picks on 100-pick looms. The two-loom rate is 1.74 cents per 1,000 picks on 75-pick looms, and 1.52 cents per 1,000 picks on 100-pick looms.

American mills.—The cost of the yarn material per yard of finished goods is $1.26. From our figures the American conversion cost from yarn to finished cloth on this fabric may be taken as 46.8 cents per yard, making a total cost of $1.728 per yard. The weaving expense per yard is 9.6 cents.

The weaver's rate is 5.28 cents per yard as a two-loom rate, or 9.14 cents as a one-loom rate.

Briefly, the German cost on this sample is $1.15 per yard as a factory cost; $1.208 a yard as the cost up to delivery. The selling price is $1.30 a yard at the mill. The American cost is $1.728 a yard.

Cards containing samples of all the cloths just described, and giving details of construction, are included in this report, and accompany it, for the use of Congress.

The accompanying table presents a summary of the information just given in detail in relation to comparative conversion costs in Germany and America:

Comparative conversion costs, from yarn to finished cloth on German-made fabrics.

Sample No.	Kind of cloth.	German.	American.
A	Worsted suiting	$0.283	$0.495
B	do	.278	.50
C	Black drape worsted	.489	.784
D	Fine worsted	.436	.71
E	Fancy worsted	.246	.413
F	Men's heavy serge	.370	.666
G	Men's serge	.315	.527
H	Fancy worsted	.286	.47
I	Unfinished worsted	.265	.47
J	Fancy worsted	.301	.521
K	do	.288	.522
L	Fancy serge	.31	.558
M	Fancy worsted	.275	.486
N	do	.257	.468

RELATIVE PRICES.

The board now presents certain comparable prices of cloths made in England and similar cloths made in this country. A collection of representative samples was made in England of fabrics ranging from those which are not imported because of a prohibitive duty to those which are imported continually. These were then matched with a collection of samples of American-made cloths which are fairly comparable, and the net mill prices of both countries compared for the same date. In this collection of samples there are 16 of cloths of which there is no importation, 16 of which the importation is either small or very small, 15 of which the importation is moderate, and 14 which are continually imported. These cloths are of the same width, and whatever difference there is in weight between the English and American fabric is given in the table. In this table there is given the type of English cloth; a statement as to whether or not it is imported, and if so, to what extent; the English net mill price; the duty which it would pay if imported; what would be the English price plus the duty; and the net mill price of an identical or similar fabric of American make.

Cards containing samples of the English and comparable American fabrics, side by side, are included in this report, and accompany it, for the use of Congress.

Relative net mill prices of English cloths and similar American fabrics.

	Sample No.	Imports.	English price.	Duty.	English price plus duty.	United States price.	English weight.	American weight.
Cotton-warp suiting	E 1	None	$0.12	$0.24	$0.36	$0.205	8.5	7.5
Woolen	E 2	....do	.167	.31	.48	.24	13.5	13.5
Cotton-warp suiting	E 3	....do	.17	.44	.61	.335	17	16
Cotton warp, light weight	E 4	....do	.187	.33	.52	.24	11.5	8.2
Cotton-warp suiting	E 5	....do	.19	.49	.68	.335	19	16.2
Do	E 6	....do	.20	.45	.65	.335	17	16
Cotton suiting	E 7	....do	.20	.47	.67	.335	17.5	16
Do	E 8	....do	.22	.46	.68	.335	17	16
Cotton-warp suiting	E 9	....do	.23	.47	.70	.335	17	16
Do	E 10	....do	.24	.49	.73	.335	18	16
Do	E 11	....do	.24	.49	.73	.335	18	16
Cotton suiting	E 12	....do	.24	.49	.73	.335	18	16
Fancy suiting	E 13	....do	.38	.60	.98	.50	16	16
Cotton suiting	E 14	....do	.40	.53	.93	.575	16	14
Worsted suiting	E 15	....do	.46	.64	1.10	1.125	13	13
Women's cloaking	E 16	....do	.54	.79	1.33	1.075	19	20
Women's dress goods	E 17	Very small	.341	.42	.76	.675	9	11.5
Men's fancy suiting	E 18	....do	.42	.51	.93	.775	11	11
Woolen cotton suiting	E 19	....do	.44	.58	1.02	.775	13	11
Heavy cloaking	E 20	....do	.85	1.09	1.94	1.375	24	24
Men's wear, heavy weight	E 21	....do	1.89	1.81	3.70	2.875	28	26
Worsted serge	E 22	Small	.48	.65	1.13	1.00	14	14
Do	E 23	....do	.617	.63	1.25	1.10	11	10.5
Worsted men's wear	E 24	....do	.678	.69	1.37	1.175	12	11
Worsted suiting	E 25	....do	.72	.86	1.58	.975	14	14
Fancy suiting	E 26	....do	.72	.78	1.50	.975	13	13
Worsted suiting	E 27	....do	.86	.97	1.83	1.55	18	16
Worsted serge	E 28	....do	.941	1.00	1.94	1.25	11	12
Do	E 29	....do	.98	1.03	2.01	1.175	14	15
Melton	E 30	....do	1.10	1.32	2.42	2.00	28	28
Do	E 31	....do	1.18	1.36	2.54	2.25	28	30
Worsted suiting	E 32	....do	1.24	1.20	2.44	2.25	19	18
Batiste	E 33	Moderate	.154	.15	.30	.275	3.5	3.5
Panama cloth	E 34	....do	.265	.24	.505	.525	3.5	3.5
Cotton warp mohair	E 35	....do	.364	.30	.66	.60	3.5	3.5
Worsted serge	E 36	....do	.38	.44	.82	.825	9.5	10
Cotton warp Panama	E 37	....do	.387	.31	.70	.715	4.9	5.5
Do	E 38	....do	.408	.44	.85	.65	7.6	6
Do	E 39	....do	.412	.37	.78	.575	5	5
Women's tricot	E 40	....do	.506	.42	.926	.80	6.5	6
Tricot	E 41	....do	.668	.77	1.44	1.00	16	16
Fancy worsted	E 42	....do	1.00	.94	1.94	1.80	13.5	13
Men's suiting	E 43	....do	1.08	1.09	2.17	1.65	18	16
Worsted suiting	E 44	....do	1.134	1.09	2.22	1.95	18	18
Do	E 45	....do	1.134	1.09	2.22	2.375	18	16
Men's suiting	E 46	....do	1.28	1.14	2.42	1.60	16	16
Worsted serge	E 47	....do	1.32	1.25	2.57	2.15	18	17
Unfinished worsted	E 48	Continual	1.18	1.03	2.21	1.80	14	14
Fancy worsted	E 49	....do	1.20	.99	2.19	1.725	12	12
Worsted serge	E 50	....do	1.22	1.08	2.30	2.05	15	11
Unfinished worsted	E 51	....do	1.22	1.11	2.33	1.80	16	14
Worsted serge	E 52	....do	1.26	1.05	2.31	1.75	13	15
Unfinished worsted	E 53	....do	1.28	1.20	2.48	2.15	18	17
Fancy worsted	E 54	....do	1.28	1.09	2.37	1.85	14	14
Worsted serge	E 55	....do	1.36	1.22	2.58	2.375	17	16
Unfinished worsted	E 56	....do	1.36	1.22	2.58	2.125	17	17
Fancy worsted	E 57	....do	1.38	1.09	2.47	1.725	12	12
Unfinished worsted suiting	E 58	....do	1.42	1.43	2.85	2.375	20	18
Unfinished worsted	E 59	....do	1.50	1.38	2.88	2.325	20	18
Men's worsted	E 60	....do	1.52	1.28	2.80	2.15	16	16.5
Heavy worsted	E 61	....do	1.68	1.47	3.15	3.00	20	18.5

COST OF BUILDINGS AND EQUIPMENT.

A very important element in woolen and worsted manufacture is the erection and equipping of the mills and the comparative costs in the United States and abroad.

The board has had estimates prepared by leading mill architects in this country and in England. These estimates were made for buildings of the same size and construction and equipped with the machinery necessary for the same production in each country, with the exception of the combing plant. We find from these estimates that the additional cost over that of England for building, erection and equipment in this country is, for a woolen mill, 49 per cent; for a wool preparing and combing mill about the same proportion; for a worsted spinning mill, 67 per cent, and for a worsted weaving mill, 43 per cent. In these cases the additional cost of buildings is between 45 and 51 per cent.

In the case of machinery the greatest difference in cost comes in the use and importation of foreign machines. Such machinery landed on the wharf in this country costs from 60 to 65 per cent more than in England. This is made up of a duty of 45 per cent and packing and shipping charges of about 20 per cent. To these costs must be added from 7½ to 10 per cent to cover cost of freight and erection, or from 13 to 18 per cent of the English cost of the machinery. The amount of foreign machinery in use in this country can be judged by the fact that in the worsted mills covered by the investigation of the board into machine efficiency 87 per cent of all the machinery from the scouring of raw wool through to the finished yarn was imported.

There are now given in detail the findings and figures for the four different plants considered and estimated.

WOOLEN MILL.

This estimate is for a woolen mill with 14 sets of cards, the buildings the usual mill construction, slow-burning type, Portland cement concrete foundations, brick walls, wooden floors, and tar and gravel roof covering. The structural steel work is made of rolled "medium" steel, having an ultimate strength of 60,000 pounds to 70,000 pounds per square inch.

The total cost of such a plant in the United States is $506,941; in England $339,854, or a higher cost in the United States of 49 per cent. The American buildings cost $176,391 and the English buildings $122,500. The machinery erected in the United States costs $180,161 and in England $122,286.

The costs in the following table between the two countries are comparable, with the exception that the fire pump is not included in the English estimate for fire protection nor a coal trestle in the English calculation for railroad siding. In the American costs the fire pump is placed at $1,000 and the coal trestle at the same price.

Woolen mill (14 sets of cards).

	United States.	England.
Buildings (chimneys included)	$182,391	$126,150
Machinery erected	180,161	122,286
Lighting equipment	5,425	3,772
Fire protection (generator included)	10,100	[1] 5,513
Heating	4,865	[2] 8,760
Manufacturing piping	4,700	3,200
Humidifiers	4,000	2,433
Elevators	2,350	1,168
Shafting and belting	18,265	6,083
Furniture and supplies	14,600	8,124
Power plant	23,300	17,571
Repair shop	4,260	3,601
Railroad siding	2,200	[3] 486
Engineering, contingencies, and allowances for starting plant	46,484	33,112
Complete plant	506,941	342,259
Cost of machinery, per set	12,868	8,734
Cost of buildings, per set	13,027	9,010
Cost of complete plant, per set	36,210	24,447

[1] Pump not included in English. [2] Vacuum system in English. [3] Coal trestle not included in English.

PREPARING AND COMBING MILL.

There are presented here the cost of a wool-preparing and combing plant in the United States and one in England, the American plant having 8 combs and the English plant 12 combs. The American plant is constructed to produce from 2,000 to 2,500 pounds of 60s. quality tops per day of 10 hours.

The total cost of the 8-comb plant in the United States is $200,158, and of the 12-comb English plant $163,003, making the American plant cost 22 per cent more than the English and for two-thirds the number of combs contained in the English plant.

In the American plant the carding machinery is of American make, but the balance of the machinery is of the best English manufacture.

The figures in the following table are comparable, with the exception of the item of railroad siding, where the coal trestle is not included in the English cost. This is put down at $1,000 in the American estimate.

Preparing and combing plant.

	United States (8-comb).	England (12-comb).
Buildings	$76,274	$70,811
Machinery and erection	73,316	53,275
Electric equipment	1,640	1,620
Fire protection	5,550	3,900
Heating	1,800	2,160
Manufacturing piping	1,425	1,525
Humidifiers	1,250	1,260
Shafting	1,704	973
Belting	1,548	1,849
Supplies	3,082	1,352
Miscellaneous equipment	5,046	3,600
Power plant	11,775	6,618
Repair shop	3,548	2,760
Railroad siding	2,200	[1] 500
Engineering and contingencies	10,000	10,800
Complete plant	200,158	163,003

[1] Coal trestle not included in English.

WORSTED SPINNING MILL.

This is an estimate for a worsted spinning mill containing three sets of drawing, and 5,400 producing spindles, producing from 2,000 to 2,500 pounds of 2/30's count yarn per day of 10 hours.

Such a plant would cost complete in the United States $203,996 and in England $121,860. The American cost is thus 67 per cent higher than the English. The cost of the buildings, including chimney, in the United States, is $62,480 and in England $40,319. The machinery, erected, cost in the United States is $72,725 and in England $37,099. In the American plant the machinery up to and including twisters is of English manufacture and the balance is of American manufacture.

The figures as given in the following table are comparable in all cases, with the exception that in the cost of railroad siding there is no coal trestle in the English estimate. The cost of the American trestle is $1,000.

Worsted spinning plant (5,400 spindles).

	United States.	England.
Buildings and chimney	$62,480.00	$40,319.00
Machinery erected	72,725.00	40,808.00
Lighting equipment	1,700.00	1,250.00
Fire protection	4,950.00	2,500.00
Heating	1,800.00	1,460.00
Humidifiers	2,400.00	1,216.00
Elevators	800.00	1,070.00
Shafting	4,361.00	2,191.00
Belting	1,475.00	1,469.00
Supplies and miscellaneous equipment	6,160.00	3,000.00
Bobbins and spools	4,662.00	1,886.00
Power plant	24,600.00	16,900.00
Repair shop	3,883.00	3,000.00
Railroad siding	2,000.00	[1] 500.00
Engineering and contingencies	10,000.00	8,000.00
Complete plant	203,996.00	125,569.00
Cost of machinery per spindle	13.46	7.55
Cost of buildings per spindle	11.57	7.46
Cost of complete plant per spindle	37.77	23.25

[1] Coal trestle not included in English.

WORSTED WEAVING MILL.

The estimates for this plant assume a worsted weaving and finishing mill containing 100 looms, and making both dress goods and men's suitings.

The total cost of such a mill in the United States is $333,678, and the cost in England of the same plant would be $233,379, making the American plant cost 43 per cent more than the English. The buildings in the United States, including chimney, cost $134,973, and in England $92,695. The machinery, erected, cost in the United States $111,338, and in England $79,342.

In this plant the machinery estimate for the United States mill is for machinery throughout of American manufacture.

The figures as given in the following table are comparable, with the exception that in the case of fire protection the fire pump is not included in the English estimate, nor the coal trestle included in the English cost of the railroad siding. The estimated cost of the trestle in this country is $1,000 and of the fire pump the same amount. In the matter of heating it is to be noted that the vacuum system is estimated for in the English cost.

Worsted weaving plant (100 looms).

	United States.	England.
Buildings (including chimney)	$134,973	$92,695
Machinery erected	111,338	79,342
Lighting equipment (generator included)	5,250	1,946
Fire protection	8,750	[1] 4,124
Heating	4,650	[2] 4,380
Manufacturing piping	7,500	5,000
Humidifiers	2,100	2,316
Elevators	1,100	1,168
Shafting and belting	6,968	4,234
Supplies and miscellaneous equipment	11,740	5,500
Power plant	17,550	11,435
Repair shop	4,159	2,433
Railroad siding	2,600	[3] 486
Engineering and contingencies	15,000	18,320
Complete plant	333,678	233,379
Cost of machinery per loom	1,113	793
Cost of buildings per loom	1,349	926
Cost of complete plant per loom	3,336	2,333

[1] Pump not included in English. [2] Vacuum system in English. [3] Coal trestle not included in English.

METHOD OF ASSESSING DUTIES.

The board has carefully considered the problem of the method of assessing the duties on manufactures of wool, with the idea of determining the feasibility of using a system of specific duties throughout.

The system of specific duties has many advantages. From the point of view of revenue and administration such a system has the advantage of fixing definite rates which are independent of the fluctuations of the market, and solves and eliminates the very important problem of undervaluation. From the economic point of view the system has this advantage; that the amount of duty remains uniform despite fluctuations in prices. One serious disadvantage of ad valorem duties is that the amount of duty increases with every increase in the price of the article. In other words, at the time when prices are high and when the consumer would be most benefited by the active competition of foreign fabrics, the duty automatically increases. Conversely, the amount of duty diminishes when prices fall; that is, when the consumer least needs relief and when the competition of foreign manufacturers is most injurious to the home producer.

From the point of view of protecting the domestic manufacturer by equalizing the difference in cost of production at home and abroad by means of tariff duties, the system of specific duties is the natural and logical method. Market values fluctuate continuously according to the prices of the raw material. The cost of manufacturing this material, however, remains relatively constant, and does not change with such fluctuations. That is, the difference in the cost of production is a relatively constant quantity and consequently a duty assessed in ad valorem terms would inevitably be at one time in excess of the difference in the cost of production and at another time less than the difference in the cost of production, according to the temporary and speculative changes of the market.

The successful operation of a system of specific duties, however, depends upon the possibility of classifying the articles on which duties are levied in definite terms familiar to the trade and corresponding to actual differences in cost of manufacture. Many efforts have been made to find an accurate basis for such classification for manufactures of wool, but thus far not with success so far as woven fabrics are concerned. In the case of yarns the problem is relatively simple. Yarns are comparatively well standardized and their cost varies in a certain regular relation to the fineness or count of the yarn. It is a simple matter, then, to adopt the specific system in this particular case. A duty can be assessed on No. 1 yarn and be made to increase by a certain proportion with each additional count of yarn. The proper additions could furthermore be made for doubling, dyeing, hard twisting, etc.

But no satisfactory method of classifying woven fabrics, in the case of manufactures of wool, with a view to the assessment of specific duties has yet been devised. Efforts have been made to classify woolen and worsted fabrics according to weight per yard and picks per inch as the proper basis for adjusting rates to relative differences in costs. This method, however, fails to take into account either the great variations in the quality of yarn going into a fabric of a given class or the great variations in the finishing of cloth after the process of weaving is completed. From an examination of many fabrics it appears that no system of classification along such lines has yet been worked out which would act in a fair and equitable manner.

It would seem, then, that in so far as woolen and worsted fabrics are concerned the only present practicable method of levying duties is to adopt in some measure a system of ad valorem duties. Such ad valorem duties would necessarily be in addition to any compensatory duties levied because of the duty on the raw material.

Any flat ad valorem duty must inevitably have very different effects in the case of different fabrics, since such a duty is assessed on the basis of the market value of the fabric without regard to the relation between the labor or conversion cost and the value of the raw material. Compare, for instance, two fabrics in one of which the conversion cost is 30 per cent of the total and in the other 60 per cent of the total. A flat ad valorem rate applied to both fabrics would give double the protection to the manufacturer of the first fabric that it would give to the manufacturer of the second. The result is that a single ad valorem rate if fixed at a point adequate to equalize the difference in the cost of production on those fabrics which have the highest labor or conversion cost would be practically prohibitory on fabrics of a lower grade. Conversely, if the duty were put at a point to equalize the difference in the labor or conversion cost on the cheaper fabrics it would be inadequate for equalizing such difference in the case of finer fabrics.

In general, it may be said that the fabrics of high value have a relatively high conversion cost. There are, of course, individual exceptions to this general statement, but they are not of sufficient importance to materially affect the case. Consequently, if the purpose of legislation be to adjust duties so far as possible to relative labor or conversion costs, this can now best be done, so far as woolen and worsted fabrics are concerned, by assessing ad valorem rates and have them vary with the value of the fabric. A system of graduated duties, increasing regularly with different increments of value, could be made equitably to equalize the difference in the cost of production on the more expensive fabrics without placing prohibitory rates on fabrics of lower grade.

PART III.—MANUFACTURING COSTS.

SECTION 2.

WEAVERS' WAGE SCALES AND AGREEMENTS FROM ENGLAND, GERMANY, AUSTRIA, FRANCE, AND BELGIUM.

Realizing that the weavers' rates are an important element in the cost of production of cloth, a collection of wage scales was made as supplementing the costs on specific samples.

A mass of wage data was secured for which no tabulation has been made because of the impossibility of handling the material in so short a time.

Wage scales, however, have been tabulated where their nature permitted of tabulation, and where this was not possible typical ones have been reproduced in translation or in summaries.

A wage scale may represent the wages paid in a single plant or in an entire industrial district, and to offset this discrepancy in the relative value of different scales an attempt has been made to show how many establishments were included in a given scale.

This has not always been possible, as, for instance, in the weavers' wage scale for the Huddersfield district of England, practically all establishments pay the scale, but it was impossible to determine just how many do not.

This would be true of the Gera district in Germany. It is safe to say, however, that a district or group wage scale is always the standard of wages for that locality and any variance either way from this standard would be slight.

ENGLISH WEAVERS' SCALES.

The Huddersfield scale, which follows, is a compilation by the Manufacturers' Association of that district, and there is an agreement among the members to pay according to this scale. It applies to one-loom work and on looms running 70 to 80 picks per minute, except that a provision is made for a 35 per cent reduction from this scale for two-loom work. A single column has been added for looms running from 110 to 120 picks per minute as a possible speed limit. No reference is made to the newer and higher speed looms which are found in some parts of England; hence where a higher speed loom is mentioned in that part of the present report which analyzes samples sent out by the board, such rates can not be compared with this table. The analysis there given of costs of production by samples is based on the cost on the most rapid looms in use on that sample in England.

The weavers' scale here given is for the type of looms named in the scale and for none other.

The Huddersfield scale is prefaced by the following statement from the secretary of the association:

HUDDERSFIELD WOOLEN MANUFACTURERS AND SPINNERS' ASSOCIATION WEAVERS' SCALE.

The following scale for 18 strings of 10 feet per string has been compiled by the above association:

In shawls not more than three shuttles will be paid for.

Up to 30 picks on warps of only one cut long 6d. extra will be allowed.

From 30 to 60 picks on warps of only one cut long 9d. extra will be allowed.

Above 60 picks on warps of only one cut long 1s. extra will be allowed.

In all cases 1 halfpenny per string to be added for every 2 healds over 16.

Weavers working two looms will be paid 35 per cent, or 7s. in the pound sterling, less than scale.

All damages traced to negligence will be deducted.

No interference will be allowed with learners approved by the masters.

William Schofield, *Secretary.*

In the tabular presentation of this scale the "string" has been reduced to yards, and the English money changed to the United States equivalent—that is, the rate is given in cents per yard, and the separate scales or rates paid to male and female weavers have been brought together in one table. The originals are published separately as two different scales, one for male and the other for female weavers. This did not seem necessary where they are to be used simply for comparison.

The tables show the rate based on the number of picks or threads of weft yarn per linear inch of the cloth as woven in the loom; the rate is shown for male weavers and for female weavers separately on one-beam and on two-beam work and where one shuttle is used, and so on up to four shuttles.

The tabulated wage scale is to be read as follows:

Suppose the weaver's rate on a woolen cloth having 51 picks to the woven inch is wanted; follow down the line of picks per woven inch on Table 1 until 51 is found, and it will be seen that for either 51 or 52 picks on one-beam and one-shuttle work the male weaver's rate is 5.68 cents per yard; the female weaver's rate is 4.92 cents; the rate for two shuttles, one beam, is 5.98 cents and 5.12 cents, respectively; on two-beam and two-shuttle work the rate for males is 7 cents, for female weavers 6.18 cents, etc.

The rate for worsted cloth woven from colored yarn can be followed on Table 2 in the same way; and the rate for worsted cloths woven in white, or "gray," as it is called in the United States, can be followed in Table 3 in a similar way.

TABLE 1.

[Rate per yard.]

Picks per woven inch.	Worsteds, woolens, and mixture or solid-colored worsteds.						
	Male weaver.						
	1 beam.				2 beams.		
	1 shuttle.	2 shuttles.	3 shuttles.	4 shuttles.	2 shuttles.	3 shuttles.	4 shuttles.
9 and 10	$0.0141	$0.0162	$0.0183	$0.0213	....	....	....
11 and 12	.0162	.0183	.0203	.0233	....	....	....
13 and 14	.0183	.0203	.0223	.0253	....	....	....
15 and 16	.0203	.0223	.0243	.0274	....	....	....
17 and 18	.0223	.0243	.0264	.0294	....	....	....
19 and 20	.0243	.0264	.0284	.0314	....	....	....
21 and 22	.0264	.0284	.0304	.0335	....	....	....
23 and 24	.0284	.0304	.0324	.0355	....	....	....
25 and 26	.0304	.0324	.0345	.0375	....	....	....
27 and 28	.0324	.0345	.0365	.0395	....	....	....
29 and 30	.0345	.0365	.0385	.0416	....	....	....
31 and 32	.0365	.0385	.0406	.0436	$0.0451	$0.0471	$0.0502
33 and 34	.0385	.0406	.0426	.0456	.0475	.0497	.0526
35 and 36	.0406	.0426	.0446	.0477	.0497	.0517	.0547
37 and 38	.0426	.0451	.0477	.0514	.0531	.0556	.0593
39 and 40	.0446	.0471	.0497	.0534	.0553	.0578	.0615
41 and 42	.0466	.0492	.0517	.0554	.0576	.0602	.0639
43 and 44	.0487	.0512	.0537	.0575	.0598	.0624	.0661
45 and 46	.0507	.0532	.0558	.0595	.0622	.0647	.0684
47 and 48	.0527	.0558	.0588	.0634	.0654	.0684	.0730
49 and 50	.0547	.0578	.0608	.0654	.0700	.0710	.0755
51 and 52	.0568	.0598	.0629	.0674	.0720	.0730	.0776
53 and 54	.0588	.0618	.0649	.0694	.0723	.0754	.0799
55 and 56	.0608	.0639	.0669	.0715	.0745	.0776	.0821
57 and 58	.0629	.0664	.0700	.0752	.0779	.0814	.0867
59 and 60	.0649	.0684	.0720	.0772	.0801	.0836	.0889
61 and 62	.0669	.0705	.0740	.0792	.0825	.0860	.0912
63 and 64	.0689	.0725	.0760	.0813	.0847	.0882	.0934
65 and 66	.0710	.0745	.0781	.0833	.0870	.0906	.0958
67 and 68	.0730	.0771	.0811	.0872	.0902	.0943	.1004
69 and 70	.0750	.0791	.0831	.0892	.0926	.0967	.1027
71 and 72	.0771	.0811	.0852	.0912	.0948	.0989	.1049
73 and 74	.0791	.0831	.0872	.0933	.0972	.1012	.1073
75 and 76	.0811	.0852	.0892	.0953	.0994	.1034	.1095
77 and 78	.0831	.0877	.0923	.0990	.1027	.1073	.1141
79 and 80	.0852	.0897	.0943	.1010	.1049	.1095	.1163
81 and 82	.0872	.0918	.0963	.1031	.1073	.1117	.1186
83 and 84	.0892	.0938	.0983	.1051	.1095	.1141	.1208
85 and 86	.0912	.0958	.1004	.1071	.1119	.1164	.1232
87 and 88	.0933	.0983	.1034	.1110	.1151	.1201	.1277
89 and 90	.0953	.1004	.1054	.1130	.1176	.1225	.1299
91 and 92	.0973	.1024	.1075	.1151	.1196	.1247	.1323
93 and 94	.0994	.1044	.1095	.1171	.1220	.1271	.1347
95 and 96	.1014	.1065	.1115	.1191	.1244	.1294	.1370
97 and 98	.1034	.1090	.1146	.1228	.1276	.1332	.1414
99 and 100	.1054	.1110	.1166	.1249	.1298	.1337	.1436
101 and 102	.1075	.1130	.1186	.1269	.1321	.1353	.1460
103 and 104	.1095	.1151	.1206	.1289	.1343	.1399	.1482
105 and 106	.1115	.1169	.1227	.1310	.1367	.1423	.1506
107 and 108	.1136	.1196	.1257	.1348	.1399	.1460	.1551
109 and 110	.1156	.1217	.1277	.1369	.1423	.1484	.1575
111 and 112	.1176	.1237	.1298	.1389	.1445	.1516	.1597
113 and 114	.1196	.1257	.1318	.1409	.1468	.1551	.1620
115 and 116	.1217	.1277	.1338	.1430	.1490	.1570	.1642
117 and 118	.1237	.1303	.1369	.1467	.1524	.1590	.1688
119 and 120	.1257	.1323	.1389	.1487	.1546	.1619	.1708

TABLE 1—Continued.

[Rate per yard.]

Picks per woven inch.	Worsteds, woolens, and mixture or solid-colored worsteds.						
	Female weaver.						
	1 beam.				2 beams.		
	1 shuttle.	2 shuttles.	3 shuttles.	4 shuttles.	2 shuttles.	3 shuttles.	4 shuttles.
9 and 10	$0.0125	$0.0141	$0.0162	$0.0180	....	....	....
11 and 12	.0141	.0162	.0179	.0206	....	....	....
13 and 14	.0162	.0179	.0196	.0223	....	....	....
15 and 16	.0179	.0196	.0213	.0240	....	....	....
17 and 18	.0196	.0213	.0233	.0260	....	....	....
19 and 20	.0213	.0233	.0250	.0277	....	....	....
21 and 22	.0233	.0250	.0267	.0294	....	....	....
23 and 24	.0250	.0267	.0284	.0311	....	....	....
25 and 26	.0267	.0284	.0304	.0331	....	....	....
27 and 28	.0284	.0304	.0321	.0348	....	....	....
29 and 30	.0294	.0311	.0338	.0365	....	....	....
31 and 32	.0299	.0330	.0360	.0406	$0.0395	$0.0411	$0.0433
33 and 34	.0330	.0360	.0365	.0411	.0426	.0446	.0477
35 and 36	.0360	.0365	.0385	.0441	.0446	.0466	.0497
37 and 38	.0370	.0406	.0400	.0444	.0466	.0487	.0517
39 and 40	.0375	.0411	.0446	.0475	.0487	.0507	.0537
41 and 42	.0406	.0438	.0451	.0505	.0507	.0527	.0558
43 and 44	.0416	.0456	.0471	.0532	.0537	.0563	.0600
45 and 46	.0446	.0461	.0502	.0537	.0558	.0583	.0620
47 and 48	.0451	.0492	.0532	.0568	.0578	.0603	.0640
49 and 50	.0461	.0507	.0537	.0596	.0598	.0624	.0661
51 and 52	.0492	.0512	.0558	.0602	.0618	.0644	.0681
53 and 54	.0522	.0542	.0588	.0634	.0649	.0679	.0725
55 and 56	.0527	.0573	.0593	.0662	.0669	.0700	.0745
57 and 58	.0537	.0588	.0617	.0689	.0689	.0720	.0765
59 and 60	.0568	.0593	.0644	.0694	.0710	.0740	.0786
61 and 62	.0598	.0624	.0674	.0725	.0730	.0760	.0806
63 and 64	.0608	.0639	.0684	.0754	.0750	.0781	.0826
65 and 66	.0613	.0669	.0700	.0759	.0781	.0816	.0869
67 and 68	.0644	.0674	.0730	.0789	.0801	.0836	.0889
69 and 70	.0654	.0689	.0750	.0816	.0821	.0857	.0909
71 and 72	.0684	.0720	.0755	.0821	.0841	.0877	.0929
73 and 74	.0689	.0750	.0786	.0852	.0862	.0897	.0950
75 and 76	.0720	.0755	.0816	.0882	.0892	.0933	.0994
77 and 78	.0730	.0771	.0836	.0911	.0912	.0953	.1014
79 and 80	.0760	.0803	.0841	.0916	.0933	.0973	.1034
81 and 82	.0765	.0831	.0872	.0946	.0953	.0994	.1054
83 and 84	.0776	.0841	.0892	.0973	.0973	.1014	.1075
85 and 86	.0806	.0852	.0897	.0978	.0994	.1034	.1095
87 and 88	.0836	.0882	.0928	.1009	.1024	.1073	.1137
89 and 90	.0847	.0894	.0948	.1037	.1044	.1090	.1157
91 and 92	.0852	.0902	.0978	.1043	.1065	.1110	.1178
93 and 94	.0882	.0933	.0983	.1073	.1085	.1130	.1198
95 and 96	.0912	.0963	.1014	.1103	.1105	.1151	.1218
97 and 98	.0918	.0978	.1034	.1130	.1136	.1186	.1262
99 and 100	.0928	.0983	.1065	.1136	.1156	.1206	.1283
101 and 102	.0958	.1014	.1070	.1166	.1176	.1227	.1303
103 and 104	.0968	.1029	.1090	.1194	.1196	.1247	.1323
105 and 106	.0973	.1059	.1120	.1200	.1217	.1267	.1343
107 and 108	.1004	.1065	.1130	.1230	.1237	.1288	.1364
109 and 110	.1014	.1080	.1146	.1257	.1257	.1308	.1384
111 and 112	.1044	.1110	.1176	.1288	.1288	.1343	.1426
113 and 114	.1049	.1141	.1206	.1293	.1308	.1364	.1446
115 and 116	.1080	.1146	.1212	.1321	.1328	.1384	.1467
117 and 118	.1090	.1161	.1232	.1352	.1348	.1404	.1487
119 and 120	.1119	.1191	.1262	.1357	.1360	.1440	.1531

TABLE 2.

Picks per woven inch.	Colored worsteds.						
	Male weaver.						
	1 beam.				2 beams.		
	1 shuttle.	2 shuttles.	3 shuttles.	4 shuttles.	2 shuttles.	3 shuttles.	4 shuttles.
31 and 32	$0.0385	$0.0406	$0.0426	$0.0461	$0.0512	$0.0532	$0.0563
33 and 34	.0406	.0426	.0451	.0482	.0536	.0556	.0586
35 and 36	.0426	.0451	.0471	.0502	.0558	.0578	.0608
37 and 38	.0451	.0477	.0502	.0544	.0607	.0632	.0669
39 and 40	.0471	.0497	.0520	.0564	.0629	.0654	.0691
41 and 42	.0492	.0517	.0547	.0585	.0652	.0678	.0715
43 and 44	.0512	.0542	.0568	.0605	.0674	.0700	.0737
45 and 46	.0532	.0563	.0588	.0625	.0698	.0723	.0760
47 and 48	.0558	.0588	.0618	.0669	.0745	.0776	.0821
49 and 50	.0578	.0608	.0644	.0689	.0771	.0801	.0847
51 and 52	.0598	.0629	.0664	.0710	.0791	.0821	.0867
53 and 54	.0618	.0654	.0684	.0730	.0814	.0845	.0890
55 and 56	.0639	.0674	.0705	.0755	.0836	.0867	.0916
57 and 58	.0664	.0700	.0735	.0792	.0885	.0921	.0973
59 and 60	.0684	.0720	.0760	.0813	.0907	.0943	.0995
61 and 62	.0705	.0740	.0781	.0833	.0931	.0967	.1019
63 and 64	.0725	.0765	.0801	.0858	.0953	.0989	.1041
65 and 66	.0745	.0786	.0821	.0879	.0977	.1012	.1065
67 and 68	.0771	.0811	.0852	.0918	.1024	.1075	.1125
69 and 70	.0791	.0831	.0877	.0938	.1048	.1088	.1149
71 and 72	.0811	.0852	.0897	.0958	.1070	.1110	.1171
73 and 74	.0831	.0872	.0918	.0983	.1093	.1134	.1194
75 and 76	.0852	.0892	.0938	.1004	.1115	.1156	.1217
77 and 78	.0877	.0923	.0973	.1041	.1164	.1210	.1277
79 and 80	.0897	.0943	.0994	.1061	.1186	.1232	.1299
81 and 82	.0918	.0968	.1014	.1087	.1210	.1255	.1323
83 and 84	.0938	.0989	.1034	.1107	.1232	.1277	.1345
85 and 86	.0958	.1009	.1054	.1127	.1255	.1301	.1369
87 and 88	.0983	.1034	.1090	.1166	.1303	.1353	.1430
89 and 90	.1004	.1054	.1110	.1191	.1326	.1377	.1453
91 and 92	.1024	.1080	.1130	.1212	.1348	.1399	.1475
93 and 94	.1044	.1100	.1151	.1232	.1372	.1423	.1499
95 and 96	.1065	.1120	.1171	.1252	.1396	.1446	.1522
97 and 98	.1090	.1146	.1206	.1294	.1443	.1499	.1580
99 and 100	.1110	.1166	.1227	.1315	.1465	.1521	.1604
101 and 102	.1130	.1191	.1247	.1335	.1489	.1544	.1627
103 and 104	.1151	.1212	.1267	.1355	.1511	.1566	.1649
105 and 106	.1171	.1232	.1293	.1375	.1534	.1590	.1673
107 and 108	.1196	.1257	.1323	.1419	.1582	.1642	.1734
109 and 110	.1217	.1277	.1343	.1440	.1605	.1666	.1757
111 and 112	.1237	.1303	.1364	.1460	.1627	.1688	.1779
113 and 114	.1257	.1323	.1384	.1480	.1651	.1712	.1803
115 and 116	.1277	.1343	.1409	.1506	.1673	.1734	.1825
117 and 118	.1303	.1369	.1440	.1543	.1722	.1788	.1886
119 and 120	.1323	.1394	.1460	.1563	.1744	.1810	.1908

TABLE 2—Continued.

Picks per woven inch.	Colored worsteds.						
	Female weaver.						
	1 beam.				2 beams.		
	1 shuttle.	2 shuttles.	3 shuttles.	4 shuttles.	2 shuttles.	3 shuttles.	4 shuttles.
31 and 32	$0.0330	$0.0360	$0.0365	$0.0411	$0.0441	$0.0456	$0.0478
33 and 34	.0360	.0365	.0385	.0441	.0487	.0507	.0537
35 and 36	.0365	.0385	.0426	.0446	.0507	.0527	.0558
37 and 38	.0406	.0400	.0451	.0478	.0527	.0547	.0578
39 and 40	.0411	.0446	.0456	.0509	.0547	.0568	.0598
41 and 42	.0438	.0451	.0487	.0514	.0568	.0588	.0618
43 and 44	.0456	.0471	.0512	.0547	.0613	.0639	.0676
45 and 46	.0461	.0502	.0517	.0578	.0634	.0659	.0696
47 and 48	.0492	.0532	.0547	.0608	.0654	.0679	.0716
49 and 50	.0507	.0537	.0573	.0615	.0674	.0700	.0787
51 and 52	.0512	.0558	.0603	.0645	.0694	.0720	.0757
53 and 54	.0542	.0588	.0608	.0676	.0740	.0771	.0816
55 and 56	.0573	.0593	.0639	.0679	.0760	.0791	.0836
57 and 58	.0588	.0617	.0664	.0701	.0781	.0811	.0857
59 and 60	.0593	.0644	.0669	.0745	.0801	.0831	.0877
61 and 62	.0624	.0674	.0700	.0752	.0821	.0852	.0897
63 and 64	.0639	.0684	.0725	.0782	.0841	.0872	.0918
65 and 66	.0669	.0700	.0755	0813	.0887	.0923	.0975
67 and 68	.0674	.0730	.0760	.0818	.0907	.0943	.0995
69 and 70	.0689	.0750	.0786	.0852	.0928	.0963	.1016
71 and 72	.0720	.0755	.0816	.0882	.0948	.0983	1036
73 and 74	.0750	.0786	.0821	.0912	.0968	.1004	.1056
75 and 76	.0755	.0816	.0852	.0918	.1014	.1054	.1115
77 and 78	.0771	.0836	.0877	.0950	.1034	.1075	.1136
79 and 80	.0803	.0841	.0907	.0980	.1054	.1095	.1156
81 and 82	.0831	.0872	.0912	.0985	.1075	.1115	.1176
83 and 84	.0841	.0892	.0938	.1019	.1095	.1136	.1196
85 and 86	.0852	.0897	.0968	.1049	.1115	.1156	.1217
87 and 88	.0882	.0928	.0973	.1054	.1161	.1206	.1274
89 and 90	.0894	.0948	.0999	.1087	.1181	.1227	.1294
91 and 92	.0902	.0978	.1029	.1117	.1201	.1247	.1315
93 and 94	.0933	.0983	.1059	.1147	.1222	.1267	.1335
95 and 96	.0963	.1014	.1065	.1152	.1242	.1288	.1355
97 and 98	.0978	.1034	.1090	.1186	.1288	.1338	.1414
99 and 100	.0983	.1065	.1120	.1217	.1308	.1359	.1435
101 and 102	.1014	.1070	.1125	.1222	.1328	.1379	.1455
103 and 104	.1029	.1090	.1151	.1254	.1348	.1399	.1475
105 and 106	.1059	.1120	.1181	.1284	.1369	.1419	.1495
107 and 108	.1065	.1130	.1212	.1289	.1389	.1440	.1516
109 and 110	.1080	.1146	.1217	.1353	.1409	.1460	.1536
111 and 112	.1110	.1176	.1242	.1359	.1455	.1511	.1593
113 and 114	.1141	.1206	.1272	.1364	.1475	.1531	.1614
115 and 116	.1146	.1212	.1277	.1389	.1495	.1551	.1634
117 and 118	.1161	.1232	.1303	.1421	.1516	.1571	.1654
119 and 120	.1191	.1262	.1333	.1426	.1561	.1622	.1713

TABLE 3.

Picks per woven inch.	Single white worsted.				Serges.		
	Male weaver.		Female weaver.		Female weaver.		
	1 beam.		1 beam.		1 beam.		Looms 110 to 120 picks.
	1 shuttle.	2 shuttles.	1 shuttle.	2 shuttles.	1 shuttle.	2 shuttles.	
31 and 32	$0.0345	$0.0365	$0.0294	$0.0299	$0.0243	$0.0259	$0.0183
33 and 34	.0365	.0385	.0299	.0330	.0259	.0274	.0193
35 and 36	.0385	.0400	.0330	.0360	.0274	.0289	.0203
37 and 38	.0400	.0426	.0335	.0370	.0279	.0299	.0213
39 and 40	.0421	.0446	.0365	.0375	.0294	.0314	.0223
41 and 42	.0441	.0466	.0370	.0406	.0309	.0330	.0233
43 and 44	.0461	.0482	.0375	.0416	.0324	.0345	.0243
45 and 46	.0482	.0502	.0406	.0446	.0340	.0360	.0253
47 and 48	.0497	.0527	.0436	.0451	.0355	.0375	.0264
49 and 50	.0517	.0547	.0441	.0461	.0370	.0385	.0274
51 and 52	.0537	.0568	.0446	.0492	.0385	.0400	.0284
53 and 54	.0558	.0583	.0477	.0522	.0400	.0416	.0294
55 and 56	.0578	.0603	.0507	.0527	.0416	.0431	.0304
57 and 58	.0593	.0629	.0512	.0537	.0419	.0446	.0314
59 and 60	.0613	.0649	.0517	.0568	.0434	.0451	.0324
61 and 62	.0634	.0669	.0547	.0598	.0449	.0466	.0335
63 and 64	.0654	.0684	.0553	.0608	.0456	.0487	.0345
65 and 66	.0674	.0705	.0583	.0613	.0471	.0502	.0355
67 and 68	.0689	.0730	.0588	.0642	.0487	.0517	.0365
69 and 70	.0710	.0750	.0593	.0652	.0502	.0532	.0375
71 and 72	.0730	.0771	.0624	.0683	.0517	.0547	.0385
73 and 74	.0750	.0784	.0654	.0689	.0532	.0553	.0395
75 and 76	.0771	.0806	.0684	.0720	.0547	.0568	.0406
77 and 78	.0786	.0831	.0689	.0730	.0553	.0588	.0416
79 and 80	.0806	.0852	.0694	.0760	.0568	.0603	.0426
81 and 82	.0826	.0867	.0725	.0765	.0583	.0618	.0436
83 and 84	.0847	.0887	.0730	.0776	.0598	.0634	.0446
85 and 86	.0867	.0907	.0760	.0806	.0613	.0639	.0456
87 and 88	.0882	.0933	.0765	.0836	.0629	.0654	.0466
89 and 90	.0902	.0953	.0771	.0847	.0634	.0674	.0477
91 and 92	.0923	.0968	.0801	.0852	.0649	.0689	.0487
93 and 94	.0943	.0989	.0831	.0882	.0664	.0705	.0497
95 and 96	.0963	.1009	.0836	.0912	.0679	.0720	.0507
97 and 98	.0978	.1034	.0841	.0923	.0694	.0725	.0517
99 and 100	.0999	.1054	.0872	.0928	.0710	.0740	.0527
101 and 102	.1019	.1070	.0902	.0958	.0725	.0755	.0537
103 and 104	.1039	.1090	.0907	.0968	.0730	.0776	.0547
105 and 106	.1059	.1110	.0912	.0973	.0745	.0791	.0558
107 and 108	.1075	.1136	.0943	.1004	.0760	.0806	.0568
109 and 110	.1095	.1156	.0948	.1014	.0776	.0811	.0578
111 and 112	.1115	.1171	.0978	.1044	.0791	.0826	.0588
113 and 114	.1136	.1191	.0983	.1049	.0806	.0841	.0598
115 and 116	.1156	.1212	.1014	.1080	.0821	.0857	.0608
117 and 118	.1171	.1237	.1019	.1090	.0826	.0877	.0618
119 and 120	.1191	.1252	.1049	.1119	.0841	.0892	.0629

The next table, Table 4, presents the weavers' wage scale for Colne Valley goods, and distinguishes between the rate paid to male weavers over 21 years of age and to females and male weavers under 21 years of age. The table should be read as follows:

To find the weaver's rate per yard on any cloth having a known number of picks to the inch, say, for instance, 30 picks, find 30 in the column of picks per inch, and following the line across it will be found that for two-shuttle work the rate is 3.65 cents per yard, for three-shuttle work it is 3.87 cents per yard, etc., if woven by men; while if woven by females or youths it is 3.09 cents per yard on two-shuttle work, 3.3 cents on three-shuttle work, etc.

TABLE 4.—*Rates of wages for weavers in England on Colne Valley goods.*

Picks per inch.	Weavers' scale.								
	Men weavers.					Male and female weavers under 21 years of age.			
	Rate per yard for 2 shuttles.	Rate per yard for 3 shuttles.	Rate per yard for 4 shuttles.	Rate per yard for 5 shuttles.	Rate per yard for 6 shuttles.	Rate per yard for 2 shuttles.	Rate per yard for 3 shuttles.	Rate per yard for 4 shuttles.	Rate per yard for 5 shuttles.
9 and 10	$0.0162	$0.0182	$0.0213	$0.0243	$0.0274	....	....	....	....
11 and 12	.0182	.0204	.0233	.0264	.0294	....	....	....	....
13 and 14	.0204	.0223	.0252	.0284	.0316	$0.0159	$0.0175	$0.0190	$0.0209
15 and 16	.0217	.0243	.0274	.0304	.0335	.0181	.0196	.0219	.0238
17 and 18	.0243	.0265	.0295	.0323	.0349	.0197	.0219	.0236	.0253
19 and 20	.0265	.0282	.0313	.0345	.0377	.0225	.0233	.0252	.0271
21 and 22	.0284	.0304	.0335	.0365	.0395	.0232	.0252	.0280	.0298
23 and 24	.0304	.0326	.0356	.0387	.0417	.0248	.0271	.0288	.0307
25 and 26	.0326	.0343	.0374	.0406	.0437	.0282	.0304	.0313	.0332
27 and 28	.0343	.0365	.0393	.0426	.0448	.0287	.0309	.0346	.0364
29 and 30	.0365	.0387	.0417	.0446	.0475	.0309	.0330	.0374	.0393
31 and 32	.0387	.0404	.0436	.0466	.0497	.0326	.0361	.0401	.0420
33 and 34	.0403	.0426	.0456	.0487	.0517	.0361	.0365	.0411	.0430
35 and 36	.0426	.0448	.0478	.0507	.0536	.0362	.0385	.0439	.0458
37 and 38	.0449	.0478	.0513	.0550	.0588	.0375	.0398	.0445	.0463
39 and 40	.0472	.0495	.0533	.0571	.0608	.0411	.0446	.0472	.0491
41 and 42	....	....	....	....	....	.0436	.0452	.0503	.0524
43 and 44	.0517	.0539	.0574	.0611	.0649	.0456	.0472	.0530	.0549
45 and 46	.0532	.0558	.0594	.0630	.0666	.0461	.0500	.0537	.0556
47 and 48	.0558	.0588	.0632	.0679	.0727	.0491	.0530	.0568	.0587
49 and 50	.0578	.0608	.0653	.0700	.0746	.0508	.0537	.0597	.0616
51 and 52	.0600	.0630	.0640	.0720	.0765	.0513	.0556	.0598	.0617
53 and 54	.0617	.0647	.0692	.0740	.0788	.0543	.0587	.0634	.0653
55 and 56	.0639	.0669	.0714	.0760	.0807	.0574	.0594	.0662	.0681
57 and 58	.0662	.0697	.0750	.0791	.0831	.0587	.0616	.0689	.0708
59 and 60	.0684	.0724	.0759	.0824	.0875	.0591	.0643	.0695	.0720
61 and 62	.0713	.0730	.0792	.0844	.0897	.0623	.0674	.0726	.0744
63 and 64	.0723	.0759	.0811	.0863	.0904	.0639	.0681	.0753	.0771
65 and 66	.0730	.0782	.0834	.0885	.0936	.0669	.0701	.0758	.0811
67 and 68	.0771	.0813	.0872	.0934	.0996	....	....	....	....
69 and 70	.0791	.0830	.0892	....	....	....	....	....	....

The standard scale of weavers' rates per yard on meltons and twills in the Yerdon and Quiseley district (England) is given in Table 5 below.

The original scale gives rates per cut of 64 yards, and this has been worked out on a yard basis in Table 5 below so far as the actual rates were concerned and for the extras which would ordinarily affect the rate. The extras referred to in the prefatory text have not been converted into yard equivalents, but refer to a cut of 64 yards. That is to say, anything in the table itself refers to yards, but in the prefatory statement, where it is stated that 6d. extra is given for each additional four shafts and for each extra shuttle, this means 6d. to each cut of 64 yards. For purposes of definition these prefatory notes have been retained as they were in the original, the scale itself having been reduced to a 1-yard unit and the rate expressed in United States money equivalents.

STANDARD SCALE OF RATES PER YARD FOR WEAVERS IN YERDON AND QUISELEY DISTRICT, ENGLAND, ON MELTONS AND TWILLS WOVEN WITH SINGLE WEFT AND SINGLE SHUTTLE; AND ADDITIONAL RATES FOR VARIATIONS.

White cotton warps, woven twill with gray wefts, 4 shafts, 30 to 39 picks—6d. less than twill scale:

That the standard length of all warps be 64 yards per cut.

The length of warp to be stated on the weaver's tickets, and if any doubt arise, the weaver be allowed to measure.

That the normal width be 68 inches in the reed within lists.

Weaves: A melton is defined as a weave with 2 picks to the round, the shed changing each pick. A twill means every weave up to 8 shafts except melton.

Shafts: Every additional 4 shafts or part thereof shall be paid 6d. extra.

Shuttles: Every additional shuttle 6d. extra.

A worsted warp, 2/20's count and below shall be as cotton. Cotton and worsted mixed shall be as cotton. Worsted and woolen mixed shall be as woolen. Cotton and woolen twist warps, 6d. extra.

TABLE 5.—*Additional rates.*

Picks per inch.	Melton.	Twill.	1 weft.	2 wefts.	3 wefts.	4 wefts.	5 wefts.
			2 shuttles.	2 shuttles.	3 shuttles.	4 shuttles.	5 shuttles.
15 to 19	$0.0133	$0.0171	$0.0019	$0.0048	$0.0067	$0.0086	$0.0105
20 to 24	.0152	.0190	.0019	.0048	.0067	.0086	.0105
25 to 29	.0171	.0209	.0019	.0048	.0067	.0086	.0105
30 to 34	.0190	.0228	.0019	.0057	.0076	.0095	.0114
35 to 39	.0209	.0247	.0019	.0057	.0076	.0095	.0114
40 to 44	.0228	.0266	.0019	.0057	.0076	.0095	.0114
45 to 49	.0247	.0285	.0019	.0057	.0076	.0095	.0114
50 to 54	.0266	.0304	.0019	.0057	.0076	.0095	.0114
55 to 59	.0285	.0323	.0019	.0057	.0076	.0095	.0114
60 to 64	.0304	.0342	.0022	.0067	.0086	.0105	.0124
65 to 69	.0323	.0361	.0022	.0067	.0086	.0105	.0124
70 to 74	.0342	.0380	.0022	.0067	.0086	.0105	.0124

Picks per inch.	Odd picks.	Slow looms.	9 to 12 shafts inclusive.	13 to 16 shafts inclusive.	Woolen threads in cotton warps.	Woolen warps.	Harness figures.	Extra beams.
15 to 19	$0.0019	$0.0038	$0.0019	$0.0038	$0.0019	$0.0038	$0.0038	$0.0038
20 to 24	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038
25 to 29	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038
30 to 34	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038
35 to 39	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038
40 to 44	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038
45 to 49	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038
50 to 54	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038
55 to 59	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038
60 to 64	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038
65 to 69	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038
70 to 74	.0019	.0038	.0019	.0038	.0019	.0038	.0038	.0038

Picks per inch.	Width.					
	Exceeding 68 and not exceeding 81.	Exceeding 81 and not exceeding 90.	Exceeding 90 and not exceeding 99.	Exceeding 99 and not exceeding 108.	Exceeding 108 and not exceeding 117.	Exceeding 117 and not exceeding 126.
15 to 19	$0.0019	$0.0038	$0.0057	$0.0095	$0.0133	$0.0171
20 to 24	.0019	.0038	.0057	.0095	.0133	.0171
25 to 29	.0019	.0038	.0057	.0095	.0133	.0171
30 to 34	.0019	.0038	.0057	.0095	.0133	.0171
35 to 39	.0019	.0038	.0057	.0095	.0133	.0171
40 to 44	.0019	.0038	.0057	.0095	.0133	.0171
45 to 49	.0019	.0038	.0057	.0095	.0133	.0171
50 to 54	.0019	.0038	.0057	.0095	.0133	.0171
55 to 59	.0019	.0038	.0057	.0095	.0133	.0171
60 to 64	.0019	.0038	.0057	.0095	.0133	.0171
65 to 69	.0017	.0038	.0057	.0095	.0133	.0171
70 to 74	.0019	.0038	.0057	.0095	.0133	.0209

There follow four local establishments weavers' scales for various parts of England, which, in view of what has already been said in explanation of other scales, will be readily understood, it is believed, without further comment:

Establishment No. 1.

[This scale is based on two shuttles.]

Worsted warps, unsized.		Cotton warps, plain blacks.	
Picks per inch.	Rate per yard.	Picks per inch.	Rate per yard.
30 to 32	$0.0345	20 to 22	$0.0263
33 to 35	.0378	23 to 25	.0295
36 to 38	.0411	26 to 28	.0328
39 to 41	.0443	29 to 31	.0361
42	.0476	32 to 34	.0394
43 to 45	.0509	35 to 37	.0427
46 to 48	.0542	38 to 40	.0460
49 to 51	.0575	41 to 43	.0492
52 to 54	.0607	44 to 46	.0525
55 to 57	.0641	47 to 49	.0574
58 to 60	.0673	50 to 52	.0591
61 to 63	.0705	53 to 55	.0613
64 to 66	.0739	56 to 58	.0657
67 to 69	.0771	59 to 61	.0689
70 to 72	.0805	62 to 64	.0723
73 to 75	.0837	65 to 67	.0755
76 to 78	.0871	68	.0788
79 to 81	.0903	69 to 71	.0821

Establishment No. 2.

[Slow looms.]

Picks per inch.	Earnings per yard for lengths of—		Picks per inch.	Earnings per yard for lengths of—	
	60 yards.	78 yards.		60 yards.	78 yards.
21	$0.0356	$0.0366	69	$0.0923	$0.0954
24	.0388	.0401	72	.0956	.0988
27	.0421	.0434	75	.0986	.1020
30	.0454	.0469	81	.1068	.0978
33	.0486	.0502	84	.1101	.1139
36	.0542	.0551	87	.1134	.1170
39	.0566	.0584	90	.1148	.1206
42	.0599	.0619	93	.1164	.0981
45	.0630	.0653	96	.1233	.1272
48	.0664	.0687	99	.1279	.1322
51	.0680	.0736	102	.1314	.1355
54	.0744	.0769	105	.1346	.1389
57	.0745	.0804	108	.1394	.1439
60	.0808	.0838	111	.1425	.1472
63	.0842	.0871	114	.1055	....
66	.0890	.0921	117	.1118	....

Fancy tweeds usually 60 yards warp, 19½ strings.
Worsted and serges 80 yards warp, 25¾ strings.
1 string=3 yards and 3 inches.
Extra shuttles over 2 paid for.
All extra beams paid for.
Fast looms 20 per cent less than above wages.
Other particulars same.

Establishment No. 3, Pudsey (near Leeds).

[Length of pieces woven, 80 yards.]

Picks per inch.	Width in inches.	Rate per yard.	Picks per inch.	Width in inches.	Rate per yard.
32	64	$0.0223	42	64	$0.0314
36	63	.0243	44	63	.0326
36	64	.0213	44	64	.0326
36	64	.0243	54	64	.0395
36	64	.0274	54	64½	.0395
40	62	.0301	54	64½	.0425
40	63	.0301	60	63	.0435
42	64	.0243			

Rates of wages for weavers in an English woolen mill.

[Single-beam work. This woolen scale is based upon one shuttle.]

Picks per inch.	Rate per yard.	Picks per inch.	Rate per yard
18 to 20	$0.0244	30 to 32	$0.0385
21 to 23	.0286	33 to 35	.0417
24 to 26	.0319	36 to 38	.0451
27 to 29	.0352	39 to 41	.0483

Slow looms: 50 picks per minute.
Fast looms: 80 to 100 picks per minute.

In addition to the preceding wage scales, actual rates paid on specific cloths were secured in a number of cases. The following tables describe these fabrics and give the weaver's rate in each case.

Table No. 6 is based upon cloths selected to match samples of American goods used as the basis for the general cost inquiry. These rates are all for two-loom work.

Table No. 7 gives the rates for a large number of specified cloths of English make. It is mostly one-loom work in the Huddersfield district.

TABLE 6.—*Cloths woven in English mills, giving description of fabric and weaving rates.*

Name of cloth.	Width.	Weight per yard.	Number of shafts.	Ends per inch (finished).	Warp yarn count.	Weft yarn count.	Locality.	Weaving price per yard.	Weaving price per 1,000 picks.
	Inches.	*Ounces.*						*Cents.*	*Cents.*
Piece dye suiting	30	7	4	58×60	2/24	1/18	Bradford	0.700	0.389
Men's serge	56	10.5	4	73×63	2/44	1/24			
Men's blue serge	57	11	4	54×52	2/30	1/18	Bradford	.586	.198
	58	13	4	56×52	2/30	1/14	do	.614	.204
Fancy piece dyed worsted	58	12	4	76×58	2/36	1/26	do	1.214	.308
Black clay worsted	58	16	4	78×70	2/30	1/18	do	1.221	.301
Fancy worsted suiting	58	11.5	4	70×61	2/36	1/28	do	1.107	.313
Fancy worsted	58	16.5	8	76×66	2/30	2/32	Huddersfield	3.557	.929
Fancy woolen cassimere	55	17	8	40×45	14	21	do Leeds	2.214 1.800	.895 .727
Fancy woolen	57	16	4	53×48	24	24	do Huddersfield	1.943 2.214	.710 .809
	54	25.25	12	57×54	12	12	do Leeds	2.550 1.914	.875 .656
Fancy woolen overcoating	56	24	4	26×26	6½	7	Huddersfield	1.400	.962
Cotton warp cassimere	34	3.40	3	80×108	[1] 1/36	[2] 1/56	Bradford	.807	.219
Woolen cloth, cotton warp	40	3	12	64×50	[1] 1/45	[2] 1/30	do	.414	.207
	36	4.60	16	65×50	[1] 1/20	[2] 1/20	do	.471	.262
Women's Panama	36	4.53	2	92×47	[1] 1/20	[2] 1/30	do	.357	.211
Brillantine	42	4.03	2	62×54	[1] 1/38	[3] 1/26	do	.386	.170
Woolen cloth, cotton warp	54	7.45	4	68×56	[1] 1/16	[2] 1/25	do	.557	.184
Women's serge, cotton warp	54	8.50	2	30×24	[1] 1/28	13	Leeds	.686	.529
Women's batiste	40	3.75	3	76×50	[1] 1/36	[2] 1/50	Bradford	.357	.179
All-wool Panama	42	5.25	2	48×54	2/48	2/42	do	.386	.170
	54	7.77	2	44×40	2/36	2/30	do	.357	.165
	50	5.50	2	48×36	2/40	1/32	do	.579	.322
All-wool broadcloth	54	11	3	71×55	1/34	1/14	do	.907	.305
Women's broadcloth	56	11.5	3	71×56	1/33	1/33	do	1.021	.326
	57	10	3	74×62	2/74	1/18½	do	.907	.257
Covert cloth	54	15.76		76×39	2/44	12	Leeds	1.386	.658
All-wool tweed	54	11.23	4	33×30	15½	15½	do	1.100	.679
All-wool sacking	50	9.75	6	68×40	1/40	24	do	1.421	.711
All-wool Panama	36	4.96	4	49×46	2/42	1/22	Bradford	.450	.272
All-wool serge	40	5.76	4	66×48	2/42	1/24	do	.471	.245
	50	7.7	4	57×44	2/32	1/22	do	.579	.263
	54	9.61	4	82×71	2/50	2/50	do	1.257	.328
	54	9.61	4	56×45	2/32	1/20	do	.586	.241
Women's cheviot	54	12.63	4	39×35	2/18	2/18	do	.557	.295
	54	14.14	6	38×34	2/17	2/17	do	.529	.288
	55	9.93	8	26×24	2/17	2/17	do	.443	.336
Women's gray worsted	60	14	4	77×70	2/38	2/38	do	1.343	.320

[1] Cotton.
[2] Worsted.
[3] Luster worsted.

TABLE 7.—*Weaving rates per yard and per 1,000 picks on woolen and worsted cloths woven in English mills.*

Name of cloth.	Cloth width in loom.	Finished width of cloth.	Weight per yard, finished.	Number of warp ends.	Warp yarn number.	Number of picks per inch.	Number of beams.	Number of shuttles.	Number of shafts.	Weaving rate—	
										Per yard.	Per 1,000 picks.
			Ounces.							*Cents.*	*Cents.*
Tweed	76	56	30	2,210	9	27	1	2	8	2.539	2.611
Do	76	56	30	2,210	9	27	1	2	8	2.315	2.382
Do	72	54	32	2,580	9	36	1	3	8	4.137	3.191
Do	72	54	32	2,580	9	36	1	3	8	3.780	2.916
Do	64	54	18/19	2,240	16/30	36	1	3	8	3.808	2.938
Do	64	54	18/19	2,240	16/30	36	1	3	8	3.555	2.742
Do	72	56	20/21	2,660	20	34	1	2	12	3.900	3.186
Do	72	56	20/21	2,660	20	34	1	2	12	3.600	2.941
Do	72	56	20	2,260	20	38	1	2	8	4.396	3.213
Do	72	56	20	2,260	20	38	1	2	8	4.027	2.944
Do	65	54	15	2,600	22	42	1	3	8	5.337	3.530
Do	65	54	15	2,600	22	42	1	4	8	4.610	3.048
Do	62	54	20	1,488	8	24	1	2	4	3.000	3.472
Do	62	54	20	1,488	8	24	1	2	4	3.304	3.824
Do	61	54	19	4,880	[1] 2/30	65	2	3	8	6.095	2.605
Do	61	54	19	4,880	[1] 2/30	65	2	3	8	6.714	2.868
Vicuna	68	56	18	3,060	[2] 2/48	39	1	3	6	3.600	2.564
Fancy tweed	68	56	16	2,178	15	38	1	3	12	4.009	2.928
Mixture vicuna	74	56	18	2,220	15	30	1	3	6	2.891	2.678
Vicuna	68	56	16	3,060	[2] 2/48	34	1	3	6	3.128	2.555
Do	74	56	32	2,220	8	30	1	3	8	2.816	2.607
Do	74	56	21	1,998	12	31	1	3	8	2.858	2.560
Do	74	56	20	2,220	15	32	1	3	8	2.972	2.825
Do	74	56	30	1,848	8	27	1	3	8	2.504	2.576
Do	74	56	19	2,664	18	36	1	3	8	3.326	2.566
Do	74	56	28	1,776	8	27	1	3	8	2.687	2.765
Flannel	64	54	13	3,070	20	[1] 1/30	1	2	8	5.885	2.724
Do	64	54	13	3,070	....	[1] 1/30	1	2	8	5.402	5.002
Do	64	54	13	3,080	20	[1] 1/30	1	2	8	5.984	2.761
Do	64	54	13	3,080	20	[1] 1/30	1	2	8	6.378	2.952
Tweed	76	64	25/26	1,370	6	20	1	3	8	2.479	3.440
Do	76	64	25/26	1,370	6	20	1	3	8	2.684	3.726
Cheviot	68	54	16/17	2,130	18	38	1	3	8	3.944	2.882
Do	68	54	16/17	2,130	18	38	1	3	8	4.274	3.124
Melton	74	......	....	....	....	37	1	1	4	2.520	1.906
Do	74	......	....	....	....	68	1	1	4	2.654	1.084
Do	74	......	....	....	....	37	1	1	4	1.964	1.474
Worsted	72	......	....	....	....	46	1	2	24	3.084	1.862
Woolen	......	68	22	1,292	[3] 105	22	1	3	4	2.160	3.728
Do	68	56	....	2,299	[4] 400/20	36	1	3	4	3.973	3.064
Do	64	54	....	2,432	[3] 300	38	1	4	4	4.612	3.371
Do	69	......	....	1,748	[3] 200	36	1	3	16	3.972	3.065
Do	64	......	15	974	[3] 105	14	1	4	4	2.052	4.071
Covert	61	......	....	3,078	[4] 36/24	42	1	3	5	3.378	2.234
Worsted (fancy)	56	......	....	5,860	2/48	60	1	2	20	6.125	2.836
Do	72	......	....	3,600	2/48	91	1	2	16	6.800	2.075
Do	56	......	....	3,150	2/22	44	1	2	8	4.475	2.824
Woolen (fancy)	54	......	....	1,750	10½	28	1	2	....	3.325	3.297
Do	78	......	....	2,070	175	30	1	4	10	3.600	3.333
Do	74	......	....	2,760	[3] 120	22	1	1	6	1.822	2.300
Do	74	......	....	3,404	....	26	1	1	4	2.100	2.240
Seals	63	50	....	1,558	2/24	26	1	1	4	2.197	2.346
Worsted	74	......	....	5,412	2/48	76	1	2	16	5.800	2.120
Do	74½	......	....	7,215	2/36	60	1	1	16	3.766	1.743
Do	74	......	....	11,029	2/62	80	1	1	15	4.000	1.389
Do	73½	......	....	4,338	3/55	116	2	1	16	7.700	1.843
Do	74¾	......	....	7,398	2/48 2/36	63	1	2	19	4.566	2.013
Do	64½	......	....	7,884	2/48	70	1	2	22	4.600	1.825
Worsted (fancy)	64	......	....	7,798	2/50	71	1	2	17	4.600	1.800
Woolen	68	......	....	1,220	[3] 200	24	1	3	4	2.266	2.622
Do	68	......	....	1,292	[3] 105	22	1	3	5	2.160	2.727
Cotton (reversible)	76	......	....	3,404	....	30	1	2	6	2.774	2.568
Woolen	54	......	....	1,970	....	30	1	2	4	3.600	3.338
Cotton and woolen (reversible)	76	......	....	4,640	....	30	1	1	6	2.666	2.468
Worsted	79	......	....	3,340	2/48	94	2	1	16	5.968	1.763
Do	72¾	......	....	6,998	2/36	109	2	2	16	8.433	2.149
Do	74	......	....	7,254	4/48	62	1	2	16	4.566	2.045
Do	72	......	....	6,892	2/36 2/29	61	1	2	16	4.166	1.807
Do	73½	......	....	4,338	2/55	116	2	1	16	7.700	1.700

[1] Cotton. [2] Worsted. [3] Yards to the ounce. [4] Two yarns of numbers indicated, twisted together.

Weaving rates per yard and per 1,000 picks on woolen and worsted cloths woven in English mills—Continued.

Name of cloth.	Cloth width in loom.	Finished width of cloth.	Weight per yard, finished.	Number of warp ends.	Warp yarn number.	Number of picks per inch.	Number of beams.	Number of shuttles.	Number of shafts.	Weaving rate—	
										Per yard.	Per 1,000 picks.
			Ounces.							*Cents.*	*Cents.*
Tweed	68	54	20	1,890	15/12	36	1	4	8	3.856	2.975
Do	63	54	17	2,566	28/34	44	1	4	8	5.272	3.328
Do	66	54	18	1,344	10/7	18	1	4	8	2.909	4.486
Do	72	54	17	2,074	15/16	32	1	4	8	3.506	3.043
Do	67	54	16	1,072	7/7	18	1	4	8	2.571	3.966
Do	74	54	24	1,908	10/10	28	1	4	8	3.012	2.988
Do	68	54	32	2,376	8/8	40	1	4	8	3.818	2.651
Do	68	54	16	2,088	16/16	32	1	4	8	3.740	3.246
Do	66	54	17	1,782	12/12	28	1	4	8	3.168	3.142
Do	68	54	18	2,091	16/16	36	1	4	8	4.116	3.176
Do	64	54	20-21	1,340	8/8	22	1	3	8	3.272	4.131
Do	64	54	20-21	1,340	8/8	22	1	3	8	3.000	3.787
Clay twill	76	58	19	4,220	2/28-2/28	56	1	1	6	1.605	.796
Do	74	58	12	5,250	2/56-2/56	72	1	1	6	2.400	.925
Unfinished clay	75	58	17	4,180	2/32-2/32	56	1	1	6	1.650	.818
Venetian	68	58	16	7,500	2/56-2/30	96	1	1	10	6.000	1.736
Campbell twill	75	58	18	3,360	2/22-3/22	44	1	1	8	1.350	.852
Unfinished Celtic	75	58	16	5,630	2/44-2/44	72	1	1	6	5.100	1.967
Clay twill	74	58	16	4,100	2/32-2/32	60	1	1	6	1.800	.833
Campbell twill	74	58	13	4,600	2/48-2/48	64	1	1	8	2.100	.911
Melton	84	......	......	......	......	42	1	1	4	2.706	1.788
Black botany twill	75	59-60	19½	58	2/28-2/28	60	1	2	8	4.082	1.890
Blue botany twill	73¼	59-60	12	64	2/48-2/48	64	1	2	8	4.377	1.889
Plain mohair, colored	36	32	Under 4.	......	......	......	1	1	4	1.142	......
Do	36	32	Under 4.	......	......	......	1	1	4	1.000	......
Do	36	32	Under 4.	......	......	......	1	1	4	1.357	......
Lining:											
Colored mohair Victoria	36	32	Under 4.	......	......	......	1	1	8	1.464	......
Twilled alpaca Princess	36	32	Under 4.	......	......	......	1	1	7	1.535	......
Do	36	32	Under 4.	......	......	......	1	1	7	1.714	......
Do	36	32	Under 4.	......	......	......	1	1	7	1.892	......

GERMAN WEAVERS' WAGE SCALES AND AGREEMENTS.

Wage scales for weavers on woolen and worsted cloths were secured from 37 localities in Germany. Sixty-four such scales were secured, representing 264 establishments. Of the 64, 35 were for single establishments, 29 were for several establishments or for all the establishments in a given locality, were, in other words, group scales. In the Gera-Greiz district, for instance, the scale tabulated as number 60 represents 22 establishments, number 61 represents 27 establishments, while number 53 represents the average rates paid in 40 establishments in Cottbus, 54 the average of 36 establishments in and around Forst.

It was manifestly impossible to translate and print all of these district scales, or to do so with any considerable number of them. It was imperative that some plan be adopted that would group or condense the essentials in these scales. Any tabulation or condensation must sacrifice something of the details or peculiarities of particular wage agreements. The only choice was of a scheme of tabulation that would preserve most of the vital things, and sacrifice the fewest details. It was decided to tabulate the basic wage rate on cloth, the weaving rate on which is the base line from which rates on other fabrics go up or down in proportion to their relation to this basic cloth rate. When an establishment, or a group of establishments represented by a wage scale, made a number of cloths so different from each other that a number of bases must be detailed in the scale a line in the tabulation base has been given to each basic rate. In most German woolen and worsted mills the unit of a weaver's pay is a thousand picks, or threads of weft yarn woven into the cloth. The record of his work is kept usually by "pick clocks," or instruments attached to the loom which record the times the shuttles shoot across the loom. When "pick clocks" are not provided the measure of picks woven is taken by counting the picks in a centimeter and then assuming the number in a meter; but however crude, and sometimes unjust the method of measuring the work done, the unit of payment is per 1,000 picks.

The basic rate therefore assumes (1) a certain number of shuttles used in weaving the base-line fabric, (2) the number of harness used to weave the fabric, and (3) the theoretical speed of the loom. In some cases the base was further detailed by describing the cloth as (1) the picks per inch (or centimeter, as it is counted in Germany), (2) the width of the cloth on the loom, or as we would say "width in the reed," (3) the number of warp ends, and (4) a statement of the kind of cloth.

Practically none of the scales give all of these particulars; some give little or nothing more than that rate per 1,000 picks which is to be the minimum for the establishment.

All of these details are, however, given, though not all by any one scale, and as all are important in estimating the standard set by the scale, they are covered in the tabulation.

The 64 wage scales include (1) 54 in which "Grundlöhne," or basic wage rates, are given, and (2) 10 in which the rates of pay for weaving specified kinds of cloth are given. The first group of 54 appear in Table 8, and the second group of 10 appear in Table 9. From each of these tables all cloths have been excluded which do not contain wool in one form or another.

TABLE 8.—*Number of establishments reporting in specified districts in Germany, rates of wages per 1,000 picks, description of looms and description of cloths, by districts.*

[Rate=basic and lowest rate.]

Locality.	Schedule No.	Number of establishments.	Rate of wages per 1,000 picks.	Looms.				Description of cloth.			
				Kind of loom.	Number of shuttles.	Number of harness.	Picks per minute.	Picks per inch.	Width in inches.	Number of ends.	Kind of cloth.
München-Gladbach	1	10	$0.0214			2-11					Wool and half wool twill, 2 a 2.
			.0226			2-11					Wool and half wool twill, 1 a 1.
	2		.0238		2	2-7					
	3		.0226		3						
	[1] 4		.0238	Schönherr	3	2-12				[2] 3,500	Cheviot and worsted without back warp.
			.0262	do	3	2-12				[2] 3,500	Worsted and cotton warp cloth.
	5		.0226			2-4					Twill cloth, 2 a 2.
			.0238			5-14					Do.
			.0232		2	2-4					Cloth woven, 1 a 1.
			.0238			5-14					Do.
	6		.0214		3	2-8					Cotton warp cloths.
			.0220		3	2-8					Carded wool warp cloths.
	7		.0250		3	4-8					Wool and half wool cloths.
	8		.0214	Lentz	3		110				
			.0233	Lentz-Einschuss	3		96				
			.0214	Schönherr	3		115				
			.0228	Schönherr-Einschuss.	3						
	27		.0164			2-8		81	45-57		Covers, cloths.
			.0214			2-8		81	45-57		Do.
	32		.0238		8		120	36	55	2,080	Men's wear.
Aachen	13	11	.0286	New		4-8				9,000	Cloth in the gray.
	16		.0286			2-16				[2] 6,000	Cheviot in the gray.
			.0298			2-16					Worsteds.
	11		.0286			5-12		92-122		[2] 5,000	
	12		.0214		3	2-16	90-100			[2] 7,000	Cloth in the gray.
	14		.0298							[2] 6,000	
	15		.0309		2-3	2-16		51-97		[2] 6,000	
	17		.0262		1	2-7				[2] 5,500	
	18		.0298		3	2-16		77		[2] 7,000	Cloth in the gray.
	19		.0286		3	2-16	68-70	51-102		[2] 7,000	Worsted in the gray.
	20		.0298		1	2-16		51-76		[2] 7,000	Piece dye worsteds and cheviots.
	21		[3] .0274		2-3	2-14	70			[2] 7,000	Worsteds and cheviots.

Luckenwalde	[3] 23	2	.0298		4	2-12				[2] 5,000	Worsted warp goods.
	24		.0286		4	6					
	25		[1] .0298								Summer twist.
	....		[4] .0333								Eskimo cloth.
	[1] 23		.0345	English crank				120		[2] 7,000	
	....		.0381	do			70	71			
Cottbus	53	40	.0293				76				
Forst	54	36	.0271				76				
Spremberg	55	22	.0240				74				
Sommerfeld	56	2	.0226				57				
Finsterwalde	57	1	.0250								
Guben	58	4	.0267				72				
Leisnig	48	1	.0209		3		75-80				
Crimmitschau	22	1	.0209	Shaft loom				43			Molton or Baise and Prime molton.
			.0238	Jacquard				43			Do.
			.0200	Shaft loom				48			Winter buckskin.
			.0226	Jacquard				48			Do.
			.0226					48			Worsted, carded wool back warp.
Kirchberg, Saxony	64	2	.0233	Plain loom				24			Military and livery cloths.
	....		.0298	Wechsel				24			Do.
	29		.0286		2	2-8	[5] 90		[6] 66.9		
Nordlingen	9	1	.0262								Woolens.
			.0262		3						Worsteds.
			.0286								Plain or fancy raincoating.
Kettwig	10	2	.0238								Staple cloths and cloths in the gray.
	....		.0262								Summer fabrics.
	....		.0274								Winter fabrics,[4] riding diagonal and kersey tweed.
	....		.0298								Doeskin.[7]
	....		.0333								Eskimo cloth.[7]
	....		.0357								Diagonal.[7]
	47		.0269			8	70	58		4,000	Summer goods.
	....		.0188			8	70	86		7,700	Winter goods.
	....		.0302			8	70	66		4,800	Worsteds in the gray.
	....		.0259			8	70	86		5,700	Coating.
Schiltach in Baden	30	1	[7] .0226								
Werdau	46	1	.0188		1	8		48		3,000-4,100	Twill.
Grossenhain	49	1	[8] .0312			2-8	70	33			Piece dyes and plain weave cheviots.
			[3] .0352			2-18	70	33			Woolens, worsteds, pattern cheviots.
Olbersdorf	[1] 45	1	.0098					25			Half wool goods; cheviot goods.
			.0112					25			Shoddies and cotton warps.
			.0126					25			Half wool goods.

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[1] For females 0.0274.

[2] Not exceeding number of ends specified.

[3] Subcontractor's scale.

[4] For females 0.0309.

[5] Over 60 picks per minute.

[6] Under 66.9 inches wide.

[7] Military cloths.

[8] For females 0.0011 less.

TABLE 8.—*Number of establishments reporting in specified districts in Germany, rates of wages per 1,000 picks, description of looms and description of cloths, by districts*—Continued.

Locality.	Schedule No.	Number of establishments.	Rate of wages per 1,000 picks.	Looms.				Description of cloth.			
				Kind of loom.	Number of shuttles.	Number of harness.	Picks per minute.	Picks per inch.	Width in inches.	Number of ends.	Kind of cloth.
Sagan	31	1	$0.0226	Old narrow looms	3	2–8			35		**Cotton-warp** goods, goods with **cotton warp and** filling, and goods **with cotton warp** and silk filling.
			.0214	New narrow looms	3	2–8			35		
			.0226	Half-broad looms	3	2–8			35		
			.0250	Broad looms	3	2–8			35		
			.0214	Old narrow looms	3	2–8			43		**Dress goods woven with 2-part reed.**
			.0214	New narrow looms	3	2–8			43		
			.0250	Half-broad looms	3	2–8			43		
			.0262	Broad looms	3	2–8			43		
			.0214	Old narrow looms	3	2–8					Winter goods, plain o**vercoatings,** black cotton fabrics, c**orded warp** yarn, plain fabrics, pla**in raincoat**ing, and women's 2-part **winter goods.**
			.0202	New narrow looms	3	2–8					
			.0214	Half-broad looms	3	2–8					
			.0262	Broad looms	3	2–8					
Melsungen	50	1	.0264	Shönherr plain Hartman-Shönherr			53–80	30			Cloakings, coatings, and tr**ouserings, in the gray.**
			.0238	Shönherr plain Hartman-Shönherr			53–80	27			**Black cloakings, blue serges, buckskins, heavy and light cheviots.**
			.0286	Hartman Shönherr			50–54	27			
			.0309	Hartman Shönherr			50–54	33			**Buckskins, heavy and light cheviots.**
			.0262	Hartman-Shönherr			80	33			
Lambrecht, Bavaria	51	7	.0286		1–4						**Tirtey.**
			.0286		1–4			[1] 38			Plain weave, 3-leaf twills, twills, **and** tweeds.
			.0298			2–18				[2] 4,500	Undyed worsteds.
			.0309		1–4			[3] 23			Military cloth and twills, gray cloak**ings.**
			.0309		1–4	2–12		[1] 25			Undyed buckskins.
			.0309		1–4	2–18				4,500	Dyed worsteds and cheviots.
			.0321		1–4	2–12		25			Dyed buckskins.
			.0369		2					[2] 4,000	Sateens and doeskins.
			.0381		2					6,000–7,000	Tricot weaves and diagonals.
			.0393		2						Kerseys and duffle cloths.
Euckirchen	28	1	.0286								Marine twill, white cloth.
			.0298						55	[2] 3,200	Serges or twill, woven worsteds.
			.0309						55	2,800–3,000	Varicolored and one-colored cloth **and** twill.
			.0321			5				3,600	**Satin.**
Barmen	33	2	.0017								**Luster, half-wool lining stuff.**
			.0019								**Half-wool twill cloths.**

Zittau	44	1	$0.0043					33	[4] 24		**Twills, lusters, and reps.**
			.0045					33	[4] 24		**Plain panamas.**
			.0050					33	[4] 24		**Mohairs.**
			.0057	Jacquard				33	[4] 31		**Cloths without extra weft figuring.**
			.0064	do				33	32		
Glauchau, Meerane, Seiferitz	52	23	[5] .4998								**Cashmere.**
			[5] .6188			4–6					Double twills, weft-faced satins.
			[5] .6664								Tibet.
			[5] .8568			8					Coating for suits.
Gera (Group I)	60	22	[6] .0063			3			[2] 55	3,000	Cashmere.
			[6] .0055			2			[7] 39		Long reps (plain woven worsteds).
			[6] .0068			4			[7] 55	3,600	Merino worsted tibet.
			[6] .0070			4			[7] 51	4,080	Worsted twill.
			[6] .0063			5–6			[7] 39	3,200	Do.
			[6] .0060			4–6			[7] 39		**Cheviot twill.**
			[6] .0065			4			[7] 39		Worsted warp twill.
			[6] .0074			6–9			[7] 39		Serge, warp twill.
			[6] .0061			5			[7] 39		Satin, Atlas weave (all wool).
			[6] .0070	Cam loom		7–10			[7] 47		Whipcord warp, Atlas twill, woven worsted.
			[6] .0074			8			[7] 39		Coating, tibet with lining.
			[6] .0084			9–15			[7] 39		Corkscrew for suiting.
			[6] .0093	Shaft loom		12			[7] 39		All mohair, camel's-hair luster.
			[6] .0118	Jacquard					[7] 39		Do.
			[6] .0057						[7] 49		Indian worsted shales.
			[6] .0050						[7] 39		Indian cheviot shales.
			[6] .0052						[7] 39		Indian raw shales.
Greiz (Group II)	61	27	[6] .0063			3			[2] 55		Cashmeres.
			[6] .0055			2			[7] 39		Long reps (plain woven worsteds).
			[6] .0049			4			[7] 39		Merino worsted tibet.
			[6] .0070			4			[7] 51		Worsted twill.
			[6] .0061			5–6			[7] 39	3,200	Do.
			[6] .0057			4–6			[7] 39		**Cheviot twill.**
			[6] .0065			4			[7] 39		Worsted warp twill.
			[6] .0074			6–9			[7] 39		Serge, warp twill.
			[6] .0061			5			[7] 47		Satin (pure wool).
			[6] .0069	Cam loom		7–10			[7] 39		Whipcord warp, Atlas twill, woven worsted.
			[6] .0071			8			[7] 39		Coating.
			[6] .0082			9–15			[7] 39		Corkscrew for suitings.
			[6] .0093	Shaft loom		12			[7] 39		All mohair, camel's-hair luster.
			[6] .0100						[7] 39		Ripe crepe.
			[6] .0118	Jacquard					[7] 39		All mohair, camel's-hair luster.
			[6] .0045						[7] 39		Indian worsted shales.
			[6] .0050						[7] 39		Indian cheviot shales.

[1] Number of picks specified, or more.
[2] Not exceeding number specified.
[3] Number of picks specified, or less.
[4] Under number specified.
[5] Rate per 100,000 meters (109,361 yards) of weft yarn; 2-loom work.
[6] Computation based on rate per 100,000 meters (109,361 yards) of weft yarn; 2-loom work; full wages to be paid for each additional loom operated.
[7] Over number specified.

TABLE 8.—*Number of establishments reporting in specified districts in Germany, rates of wages per 1,000 picks, description of looms and description of cloths, by districts*—Continued.

Locality.	Schedule No.	Number of establishments.	Rate of wages per 1,000 picks.	Looms.				Description of cloth.			
				Kind of loom.	Number of shuttles.	Number of harness.	Picks per minute.	Picks per inch.	Width in inches.	Number of ends.	Kind of cloth.
Reichenbach, Elsterberg, Ronneburg (Group III).	62	33	[1] $0.0045			3			39		Cashmere, long.
			[1] .0063			4			55	3,600	Worsted merino tibet.
			[1] .0065			4			51		Worsted twill.
			[1] .0055			5-6			39	3,200	Do.
			[1] .0050			4-6			39		Cheviot twill.
			[1] .0065			4			39		Worsted warp twill.
			[1] .0070			6-9			39		Serge, warp twill.
			[1] .0056			5			47		Satin (pure wool).
			[1] .0065	Cam loom		7-10			39		Whipcord warp, Atlas twill, woven worsted.
			[1] .0069			8			39		Coating (tibet with lining).
			[1] .0077			9-15			39		Corkscrew for suitings.
			[1] .0106						39		Half-wool luster.
			[1] .0086	Shaft loom		12			39		All mohair, camel's-hair luster.
			[1] .0096	Jacquard					39		Do.
			[1] .0054						49		Indian worsted shales.
			[1] .0046						39		Indian cheviot shales.
Summary (Gera, Greiz, Reichenbach, Elsterberg, and Ronneburg groups).	63	82	[1] .0088	Plain loom		6			55		Men's cloth (boys' gray suiting; suiting 55 inches wide).
			[1] .0098	do		6			55	4,800	
			[1] .0155	Shift loom		8			55	4,800	
			[1] .0150	Plain loom		8			55	(2)	
			[1] .0162	Shift loom		8			55	4,800	
			[1] .0113	Plain loom		9-10			55	4,800	
			[1] .0169	Shift loom		9-10			55	4,800	
			[1] .0120	Plain loom		9-18			55	4,800	
			[1] .0175	Shift loom		9-18			55	(2)	
			[1] .0112	Plain loom		13			55		

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[1] Two-loom work; full wages to be paid for each additional loom. Computations based on rate per 100,000 meters (109,361 yards) of weft yarn. Filling yarn 35s or finer.

[2] Over 4,800 warp ends.

TABLE 9.—*Number of establishments in specified districts in Germany reporting, rates of wages per 1,000 picks, description of looms, and description of cloths, by districts.*

[Rates—Basic rates, based on kind of cloth.]

Locality.	Schedule.	Number of establishments	Rate of wages per 1,000 picks.	Looms.			Description of cloth.							
				Kind of loom.	Number of harness.	Picks per minute.	Picks per inch.	Width in inches.	Warp.			Filling.		Kind of cloth.
									Number of ends.	Size of yarn.	Quality.	Size of yarn.	Quality.	
München-Gladbach	4a	1	$0.0155	Smitt, 35.4 in. broad			64–66							
			.0179	Smitt, 68.9 in. broad			32							Wodan.
			.0179	do.			32–34							Herkules.
			.0186	do.			42							Carmen Ia.
			.0198	do.			40							Viktoria E.
			[1] .0202	do.			42							Norma.
			.0214	do.			42							Buffalo.
			.0214	do.			42							Apollo.
			[2] .0214	do.			44–66							Oberon.
			[3] .0224	do.			44							Imperial.
			.0231	do.			56							Selekta.
			[4] .0250	do.			54–56							Senorita.
			.0250	do.			56							Qual. 2317.
			[5] .0255	do.			52							Suprema B.
			.0262	do.			60							Suleika.
			.0262	do.			60							Figaro II.
			.0264	do.			60							Tunis W.
			[6] .0276	do.			68							Elegante.
			[7] .0281	do.			64							Tunis.
			.0286	Smitt 35.4 in. broad			100							Doppelsenta J. B.
			[8] .0286	Smitt 68.9 in. broad			68							Elektra.
			[9] .0286	do.			68							Union.
			.0309	do.			76							Satin, 1842.
			.0314	do.			74							Premium.
			[10] .0333	do.			70–72							Kammgarn W.
			[11] .0352	do.			70							Senta.
			.0355	do.			86							Satin 2318.

Rates for weaving on looms 35.4 inches broad are as follows: [1] $0.0107; [2] $0.0119; [3] $0.0138; [4] $0.0129; [5] $0.0136; [6] $0.0162; [7] $0.0148; [8] $0.0152; [9] $0.0167; [10] 0.0174; [11] $0.0179.

TABLE 9.—*Number of establishments in specified districts in Germany reporting, rates of wages per 1,000 picks, description of looms, and description of cloths, by districts*—Continued.

Locality.	Schedule No.	Number of establishments	Rate of wages per 1,000 picks.	Looms.			Description of cloth.							
				Kind of looms.	Number of harness.	Picks per minute.	Picks per inch.	Width in inches.	Warp.			Filling.		Kind of cloth.
									Number of ends.	Size of yarn.	Quality.	Size of yarn.	Quality.	
Barmen	34	1	$0.0079			120	80	59	5,600	18/2	Cotton	24	Alpaca	Alpaca.
			.0092			110	90	59	5,700	20½/2	do	30	Luster	Plaid.
			.0065			120	80	59	4,550	36 raw.	Wool	20		Figured Zanella, twill woven worsted.
			.0052				60	59	6,100	2/21		2/21		Half-wool Zanella, twill woven worsted.
			.0090	Jacquard			80	59	5,700	2/20½	Fine	2/20½	Fine	Jacquard plaid.
			.0078				80	59	5,700	2/20½	do	2/20½	do	Shaft plaid.
			.0079		6		80	59	5,060	2/18	do	2/18	do	Alpaca
			.0072		6		90		5,900	2/21	do	2/21	do	Do.
			.0075		6		75		5,900	2/21	do	2/21	do	Do.
			.0076		6		75		5,900	2/21	do	2/21	do	Luster-Lund.
			.0078		6		70		5,000	2/18	do	2/18	do	Do.
			.0079		6		75		5,900	2/21	do	2/21	do	Do.
Herford in Westphalia	37	1	.0062		8	120	38	35	1,386	20/2		20/2		Duolin.
			.0055		4	120	56	43	2,200	24		12		Lamia.
			.0056		4	120	64	28	1,882	40/2		12		Solide.
			.0062		2	120	38	35	1,509	20/2		20/2		Duolin.
			.0064		16	120	56	35	2,440	40/2		50/2		Erika.
			.0066		9	120	52	35	1,960	40/2		12		Atlas.
			.0076		6	120	52	28	1,368	20/3		5		Buckskin.
			.0061		4	120	56	37	2,420	20/2		20		Twill, Atlas.
Reichenau, Sa	38	4	.0054	Plain loom	2	140	58	25	1,700	26	Cotton	30	Worsted	Panama 755, half wool.[1]
			.0039	do	2	140	43	24	1,140	36	do	18	do	Panama, half wool.[1]
			.0105	Jacquard		130	34	35	2,420	32	do	30	Raw	Do.[1]
			.0041	Plain loom	2	170	46	25	1,280	36	do	30	Worsted	Orleans, half wool.[1]
			.0132	Jacquard		130	38	34	2,240	26	do	30	do	Satin II, half wool.[2]
			.0069	Shaft loom	8	124	43	35	1,520	30	do	16	Wool	Fancy, half wool.[3]
	39		.0064	do	12	124	37	23	2,720	30	do	30	do	Japon, B. S. 72.[1]
			.0091	Jacquard		124	42	36	2,190	24	Cotton, raw	19	do	Cr., B. 43.[1]
	42		.0207	Shaft loom	7	118	36	38	1,920	24	do	30	Worsted	Cheviot, 725.[3]
			.0071	Plain loom	2	118	42	43	1,340	36	do	16	do	Panama.[1]
			.0081	do	4	118	56	44	2,520	45	do	28	do	Orleans.[1]
	43		.0045	Shaft loom and eccentric.		124	173 102	57	4,500	45–36		40–24		Zanella.[3]

Markersdorf, near Reichenau.	40	1	.0112	Plain loom	2	120	27	56	2,400	40	Cotton, raw	16	Worsted	Panama.[1]
			.0112	Jacquard		120	43	35	2,120	30	do	30	do	Jacquard crepe.[2]
			.0102	Plain loom	2	120	37	42		20	do	30	do	Cord V.[1]
			.0286			120	71	45	3,480	120/2		40	Half wool	Antelope.
			.0248			120	69	47	3,700	40/1		20	Demi wool	Milano.
			.0238			120	69	45	2,988	102/2		28	Mohair fine	Alpaca luster.
			.0229			120	34	51	2,680					Ninella.
Olbersdorf near Zittau	45a	1	.0217			120	69	43	2,912	20–40	Black	32	Cheviot	Clothing cloth.
			.0202			120	69	35	3,728	32	Cheviot	20/1	Melange	Do.
			.0214			120	64	43	2,616	100/2	White	28	Mohair	Cloth for blouses.
			.0214			120	61	43	2,640	100/2		24	do	Mohair luster.
			.0157			120	48	39	1,840	32	Maco, cotton	18	Demi mohair	Panama.
			.0119			120	41	34	1,648	21/1	Cheviot	20	Worsted	Cloth for blouses.
			.0107			120	32	41	1,840	20–40	Moline	8	Shoddy	Clothing cloth.

Rates for weaving on looms 35.4 inches broad are as follows: [1] Linen weave; [2] Krepp weave; [3] Twill weave.

Table 9.—*Number of establishments in specified districts in Germany reporting, rates of wages per 1,000 picks, description of looms, and description of cloths, by districts*—Continued.

Locality.	Schedule No.	Number of establishments	Rate of wages per 1,000 picks.	Looms.			Description of cloth.							
				Kind of looms.	Number of harness.	Picks per minute.	Picks per inch.	Width in inches.	Warp.			Filling.		Kind of cloth.
									Number of ends.	Size of yarn.	Quality.	Size of yarn.	Quality.	
Barmen	34	1	$0.0079			120	80	59	5,600	18/2	Cotton	24	Alpaca	Alpaca.
			.0092			110	90	59	5,700	20½/2	do	30	Luster	Plaid.
			.0065			120	80	59	4,550	36 raw.	Wool	20		Figured Zanella, twill woven worsted.
			.0052				60	59	6,100	2/21		2/21		Half-wool Zanella, twill woven worsted.
			.0090	Jacquard			80	59	5,700	2/20½	Fine	2/20½	Fine	Jacquard plaid.
			.0078				80	59	5,700	2/20½	do	2/20½	do	Shaft plaid.
			.0079		6		80	59	5,060	2/18	do	2/18	do	Alpaca
			.0072		6		90		5,900	2/21	do	2/21	do	Do.
			.0075		6		75		5,900	2/21	do	2/21	do	Do.
			.0076		6		75		5,900	2/21	do	2/21	do	Luster-Lund.
			.0078		6		70		5,000	2/18	do	2/18	do	Do.
			.0079		6		75		5,900	2/21	do	2/21	do	Do.
Herford in Westphalia	37	1	.0062		8	120	38	35	1,386	20/2		20/2		Duolin.
			.0055		4	120	56	43	2,200	24		12		Lamia.
			.0056		4	120	64	28	1,882	40/2		12		Solide.
			.0062		2	120	38	35	1,509	20/2		20/2		Duolin.
			.0064		16	120	56	35	2,440	40/2		50/2		Erika.
			.0066		9	120	52	35	1,960	40/2		12		Atlas.
			.0076		6	120	52	28	1,368	20/3		5		Buckskin.
			.0061		4	120	56	37	2,420	20/2		20		Twill, Atlas.
Reichenau, Sa	38	4	.0054	Plain loom	2	140	58	25	1,700	26	Cotton	30	Worsted	Panama 755, half wool.[1]
			.0039	do	2	140	43	24	1,140	36	do	18	do	Panama, half wool.[1]
			.0105	Jacquard		130	34	35	2,420	32	do	30	Raw	Do.[1]
			.0041	Plain loom	2	170	46	25	1,280	36	do	30	Worsted	Orleans, half wool.[1]
			.0132	Jacquard		130	38	34	2,240	26	do	30	do	Satin II, half wool.[3]
			.0069	Shaft loom	8	124	43	35	1,520	30	do	16	Wool	Fancy, half wool.[3]
	39		.0064	do	12	124	37	23	2,720	30	do	30	do	Japon, B. S. 72.[1]
			.0091	Jacquard		124	42	36	2,100	24	Cotton, raw	19	do	Cr., B. 43.[1]
	42		.0207	Shaft loom	7	118	36	38	1,920	24	do	30	Worsted	Cheviot, 725.[3]
			.0071	Plain loom	2	118	42	43	1,340	36	do	16	do	Panama.[1]
			.0081	do	4	118	56	44	2,520	45	do	28	do	Orleans.[1]
	43		.0045	Shaft loom and eccentric.		124	173 102	57	4,500	45–36		40–24		Zanella.[3]

Markersdorf, near Reichenau.	40	1	.0112	Plain loom	2	120	27	56	2,400	40	Cotton, raw	16	Worsted	Panama.[1]
			.0112	Jacquard		120	43	35	2,120	30	do	30	do	Jacquard crepe.[2]
			.0102	Plain loom	2	120	37	42		20	do	30	do	Cord V.[1]
			.0286			120	71	45	3,480	120/2		40	Half wool	Antelope.
			.0248			120	69	47	3,700	40/1		20	Demi wool	Milano.
			.0238			120	69	45	2,988	102/2		28	Mohair fine	Alpaca luster.
			.0229			120	34	51	2,680					Ninella.
Olbersdorf near Zittau	45a	1	.0217			120	69	43	2,912	20–40	Black	32	Cheviot	Clothing cloth.
			.0202			120	69	35	3,728	32	Cheviot	20/1	Melange	Do.
			.0214			120	64	43	2,616	100/2	White	28	Mohair	Cloth for blouses.
			.0214			120	61	43	2,640	100/2		24	do	Mohair luster.
			.0157			120	48	39	1,840	32	Maco, cotton	18	Demi mohair	Panama.
			.0119			120	41	34	1,648	21/1	Cheviot	20	Worsted	Cloth for blouses.
			.0107			120	32	41	1,840	20–40	Moline	8	Shoddy	Clothing cloth.

Rates for weaving on looms 35.4 inches broad are as follows: [1] Linen weave; [2] Krepp weave; [3] Twill weave.

Of the 64 wage scales shown in Tables 8 and 9, representing about 264 establishments, Nos. 51, 53, 54, 55, 56, 57, 58, 60, and 61 are groups of establishments; 52, 59, 62, and 63 are locality groups, showing rates for practically all the establishments in the respective neighborhoods; 21 is the lowest rate scale which subcontractors in Aachen pay to their weavers. All other scales are for individual establishments, from a few of which there are two reports, which may be recognized under a given number with a letter following, as 4a and 4b, 23a and 23b, etc. In 42 schedules the rate is per 1,000 picks of filling yarn. In 16 schedules the rate is per cut or per piece of specified length, variously termed a "cut" or "Band," or "Schmitz." In the Gera-Greiz-Elsterberg district, as shown in schedules 60, 61, 62 and 63, and in the Glauchau-Meerane-Seiferitz district, Schedule 52 the unit of pay for weavers is 100 Zahlen, or 100,000 meters of filling yarn woven into the cloth. With the exception of Schedules 33, 48, and 52, in which certain necessary data were not submitted, all scales were reducible to the 1,000-pick basis and are so treated. The 2-loom towns are in the Gera-Greiz-Elsterberg, and the Glauchau-Meerane-Seiferitz districts. In general it may be assumed that rates appearing in the tables under 6 pfennigs (14.3 mills) per 1,000 picks are 2-loom rates or are for more easily woven women's wear.

Not considering establishments 33, 48, and 52, whose rates on account of a lack of data can not be reduced to the common 1,000-pick basis, the two tables show that 16 establishments or groups produce certain cloths on which they pay between 1.62 and 5.81 pfennigs per 1,000 picks as a lowest rate. Ten establishments or groups produce certain cloths on which they pay between 6 and 8.8 pfennigs per 1,000 picks as a lowest rate; 24 establishments or groups produce certain cloth on which they pay between 9 and 10.9 pfennigs per 1,000 picks as a lowest rate; 28 establishments or groups produce certain cloths on which they pay between 11 and 12.7 pfennigs per 1,000 picks as a lowest rate; 10 establishments or groups produce certain cloths on which they pay between 13 and 14.9 pfennigs per 1,000 picks as a lowest rate; 4 establishments or groups produce certain cloths on which they pay between 15 and 16.5 pfennigs per 1,000 picks as a lowest rate.

The explanation for the low rates, from 1.62 to 5.81 pfennigs is that the cloths manufactured at such weaving rates are women's-wear fabrics of light weight, and cotton warp, or weft, and that it is 2-loom work on fast looms. The usual rate on men's wear woolens and worsteds, with the weaver tending 1 loom, ranges from 9 to 13 pfennigs per 1,000 picks, 40,000 to 55,000 picks woven per day being a good day's production for a good weaver. The prevailing lowest rates may be shown further as follows in Table 10:

TABLE 10.

Rate per 1,000 picks.	Number of establishments.[1]	Schedule numbers.
1.62- 5.81 pfennigs	11	34, 37, 38, 39, 40, 43, 44, 45b, 60, 61, 62.
1.62- 8.8 pfennigs	2	42, 63.
1.62-12.7 pfennigs	1	45a.
1.62-14.9 pfennigs	1	4a.
6.0 - 8.8 pfennigs	1	46.
6.0 -10.9 pfennigs	2	22, 30.
6.0 -12.7 pfennigs	2	31, 47.
6.0 -16.5 pfennigs	1	27.
9.0 -10.9 pfennigs	12	1, 2, 3, 5, 6, 7, 8, 12, 32, 55, 56, 57.
9.0 -12.7 pfennigs	2	4b, 64.
9.0 -14.9 pfennigs	1	50.
9.0 -16.5 pfennigs	1	10.
11.0 -12.7 pfennigs	17	9, 11, 13, 14, 16, 17, 18, 19, 20, 21, 23a, 24, 29, 53, 54, 58, 59.
11.0 -14.9 pfennigs	2	25, 28.
11.0 -16.5 pfennigs	1	51.
13.0 -14.9 pfennigs	2	15, 49.
13.0 -16.5 pfennigs	1	23b.

[1] Not including three (Nos. 33, 48, 53) whose rates as reported can not be reduced to 1,000-pick basis.

Day rates were reported as follows:

Establishment or group No.	Rates for time workers.
3	3.25 marks (77 cents) to 5 marks ($1.19) per day.
4b	Day rate is found in particular instances by taking the average of the weaver's preceding 6 week days.
6	35 pfennigs per hour=8.3 cents.
8	35 pfennigs per hour=8.3 cents.
19	35 pfennigs per hour=8.3 cents.
24	25 pfennigs per hour for males=5.95 cents.
	20 pfennigs per hour for females=4.76 cents.
25	30 pfennigs per hour for men for work out of the ordinary=7.14 cents.
	25 pfennigs per hour for women for work out of the ordinary=5.95 cents.
29	16 marks ($3.81) per week as lowest rate for males over 18 years old, and an additional 10 per cent increase, subsequently added, making $4.19 the minimum.
	12 marks ($2.86) to 14.50 marks ($3.45) per week as lowest pay for males 16 to 18 years old.
	8 marks ($1.90) to 10 marks ($2.38) per week as lowest pay for males 14 to 16 years old.
	12 marks ($2.86) as lowest pay per week for females over 18 years old.
	10 marks ($2.38) to 11 marks ($2.62) as lowest pay per week for females 16 to 18 years old.
	8 marks ($1.90) to 9 marks ($2.14) as lowest pay for females 14 to 16 years old.
30	30 pfennigs=7.14 cents per hour for males over 19 years old.
	25 pfennigs=5.95 cents per hour for females over 19 years old.
30	23 pfennigs=5.47 cents per hour for males up to 19 years old.
	18 pfennigs=4.28 cents per hour for females up to 19 years old.
46	30 pfennigs=7.14 cents per hour for males; 20 pfennigs per hour for females.
50	25 pfennigs=5.95 cents per hour for weavers over 21 years old.
	20 pfennigs=4.76 cents per hour for weavers up to 21 years old.
	15 pfennigs=3.57 cents per hour for weavers up to 18 years old.
	10 pfennigs=2.38 cents per hour for weavers up to 16 years old.

No rates appear in Table 8 except the lowest rates paid for the goods specified under the cloth organization set opposite the rates, and, as far as possible, the same elimination of rates rising above the minimum on particular fabrics has been made in Table 9. It will be understood that from the rates shown in the two tables the pay of weavers increases according to such changes in their work as are brought about by using more harnesses or more ends of warp or yarns of different size and breaking strength, etc. Such increase in the weaver's rate is from ¼ pfennig (½ mill) to 3 pfennigs (7 mills) per unit of pay. In general the rates shown in the tables, and particularly in Table 8, are paid for cloths woven with simple weave, with 3 shuttles or less, with not over 8 harnesses, with from 40 to 50 picks per inch, with a reed width of 50 inches generally, and upon plain looms with a speed of approximately 70 to 80 picks per minute. But in paying weavers the German manufacturer has taken account of many more factors in the weaving than the American manufacturer, so that while the rates shown in the tables may appear very low they do not show all that the weaver gets. Changes in any one or all of the factors shown opposite each rate, or others not shown in the tables at all, may mean an increase in the weaver's pay. Practically the only factor that would reduce the rates shown is an increased speed of the loom, and only a few scales make that provision. In certain establishments also the weaver gets extra pay for work collateral to weaving, such as helping to set warp beams in place, tying-in warp ends, and he is paid for loss of production due to waiting for repairs or materials or for badly running yarns. While Germany is practically a one-loom country, there are districts such as the Gera-Greiz-Elsterberg district and the Glauchau-Meerane-Seiferitz and the Lambrecht districts, where the weaver tends two or more looms and earns from 25 per cent to 100 per cent additional pay for each additional loom even at the reduced rate per 1,000 picks. For operating "Wechselstuhlen," or shift looms which permit the use of variously colored filling threads, the weavers in the Gera district receive a rate 33 per cent higher, and for operating many other kinds of looms which are complicated or very old or are capable of weaving intricate patterns the rates as shown in Tables 8 and 9 are increased.

The following table shows other factors in the make-up of cloth which cause an increase in the rates of pay shown in Tables 8 and 9:

TABLE 11.

Weaver's rate shown in Tables II and III increase with—	Number of establishments or groups of establishments.	Number of establishments or groups which increase their rate per 1,000 picks by specified amounts.						Number of establishments or groups in which the amount of increase in rate varies with particular kinds of cloth.[1]
		2/10 to 3/10 pfennig.	½ pfennig.	¾ pfennig.	1 pfennig.	1½ pfennig.	2 to 3 pfennigs.	
An increase in number of harnesses	25	5	15	......	2	......	1	2
An increase in number of shuttles	23	6	14	......	2	......	......	1
An increase in number of warp ends	24	3	12	......	2	......	2	5
A change in the number of picks of filling	17	1	6	......	1	1	1	7
An increase in the number of colored threads	12	......	7	......	3	1	1	....
The use of coarser yarn	10	2	3	1	2	......	2	....
The use of carded yarn warp	7	1	1	......	3	2	......	....
The use of back filling or under warp to increase weight of cloth	6	......	5	......	......	......	1	....
The use of 1-ply carded wool yarn	5	......	......	......	1	......	......	4
The use of 2 beams	5	......	1	......	3	......	1	....
A change in the width of the cloth	7	1	......	1	......	......	......	5
The use of 1-cut warps	4	......	1	......	2	......	......	1
A decrease in the speed of the loom	3	......	2	......	......	......	......	1

[1] Amount of increase in rate per unit not exceeding the amounts shown for other changes in conditions of weaving.

For weaving pattern cuts or samples weavers are paid extra wages in most establishments. Their pay for such usually varies with the length of the cut and consists in a percentage increase over the rates shown in Tables 8 and 9, as follows:

TABLE 12.—*For weaving patterns.*

Establishment or group No.	Rate of pay.
4*b*	40 pfennigs per hour equal 9.52 cents.
5	Day rate, determined by averaging last 4 to 6 pays.
6	Day rate, determined by averaging last 4 pays.
7	10 per cent added to regular rates for patterns 31 to 50 meters long.
	20 per cent added to regular rates for patterns 16 to 30 meters long.
	30 per cent added to regular rates for patterns 10 to 15 meters long.
13	2 pfennigs equal $0.0048 more per 1,000 picks patterns 10 to 25 meters long.
	4 pfennigs equal $0.0095 more per 1,000 picks patterns up to 10 meters long.
	Patterns longer than 25 meters (.) are counted as 2 patterns.
15	10 per cent added to regular rates for patterns 30 to 40 meters long.
	20 per cent added to regular rates for patterns 20 to 30 meters long.
	30 per cent added to regular rates for patterns 10 to 20 meters long.
	50 per cent added to regular rates for patterns under 10 meters long.
17	Double the rate for first 3 meters of pattern.
18	10 per cent added to regular rate for a pattern 40 meters long.
	20 per cent added to regular rate for a pattern 30 meters long.
	30 per cent added to regular rate for a pattern 25 meters long.
	50 per cent added to regular rate for a pattern 20 meters long.
20	15 per cent added to regular rate for a pattern over 30 meters long.
	20 per cent added to regular rate for a pattern over 20 meters long.
	30 per cent added to regular rate for a pattern over 10 meters long.
	50 per cent added to regular rate for a pattern under 10 meters long.
23*a*	15 per cent added to regular rate for a woolen pattern 20 meters long.
23*b*	20 per cent added to regular rate for a worsted pattern 20 meters long.
24	15 per cent added to regular rate for a woolen pattern over 5 meters long.
	20 per cent added to regular rate for a worsted pattern over 5 meters long.
	Partial length over 5 meters are paid for on same basis as full pieces.
25	1 pfennig equals $0.00238 more than 1.000 picks.
30	Receive day rate (see other table) if pattern is over 1 meter long.
	Receive no extra pay if pattern is under 1 meter long.
45*b*	25 per cent added to regular rate for patterns under 20 meters long.
49	10 pfennigs equal $0.0238 per 4 meters on patterns with from 50 to 86 picks per inch.
	20 pfennigs equal $0.0476 per 4 meters on patterns with over 86 picks per inch.
	An additional 10 pfennigs per 4 meters for patterns with a backing.

For overtime, night work, and Sunday work, certain establishments pay additional wages above the rates shown in Tables 8 and 9, as follows:

TABLE 13.

Establishment or group No.	Kind of work.	How paid for.
23*a*	From 6 p. m. to 10 p. m., or Sunday.	20 per cent increase.
	After 10 p. m.	40 per cent increase.
24	Night work Overtime work Sunday work	Males 30 pfennig per hour equals $0.714. Females 25 pfennig per hour equals $0.0595.
29	Overtime work 10 p. m. to 6 a. m. and Sunday work.	25 per cent increase 50 per cent increase Same for males and females.
30	Overtime work; Sunday work.	35 pfennig equals $0.0833 per hour for males over 19 years old.
31	Overtime work	33 per cent increase for males.
63	Overtime and night work	3 marks per day equals $0.714.

The German weaver is subject to fines as high as 3 marks (71.4 cents) in particular instances, and in one establishment is said to be required to take the imperfect cloth. Tardiness and imperfect picks in the cloth are the usual causes for fines. Establishment 9 fines weavers 20 pfennigs (5 cents) for 15 minutes' tardiness and gives the fine to the best general worker in the establishment. For more than 8 filling or weft thread breaks, establishment 49 fines weavers 10 pfennigs (2.38 cents) per break, and they forfeit their premium if a filling break goes over half the width of a cloth that is being woven on a loom equipped with a pick clock. Other deductions are made as follows in certain establishments:

Schedule No.	Why made.	Amount deducted.
20	On looms running—	
	70 to 79 picks per minute	6 per cent less than rate.
	80 to 89 picks per minute	12 per cent less than rate.
	90 to 100 picks per minute	18 per cent less than rate.
21	On looms running—	
	68 to 80 picks per minute	½ pfennig per 1,000 picks less.
	80 to 90 picks per minute	1 pfennig per 1,000 picks less.
	90 to 100 picks per minute	1½ pfennig per 1,000 picks less.
	100 to 120 picks per minute	2 pfennig per 1,000 picks less.
23a	On looms running 90 picks per minute	½ pfennig per 1,000 picks, males. 2 pfennig per 1,000 picks, females.

On the other hand the weaver is protected against loss of production on account of repairs, or on account of waiting for materials, or badly running warp or filling yarns, either by giving him work on another loom, or by putting him on a time rate determined by averaging his three to six preceeding weekly pays, as follows:

TABLE 14.

Establishment or group No.	Reasons for change or increase of rates shown in Tables 8 and 9.	Change in rate or manner of pay of weavers when repairs, or waits, or badly running materials make regular rates inoperative.
1	Waiting for materials	25 pfennigs (6 cents) per hour after fifth hour.
	Imperfect yarns	Day rate, determined by averaging the weaver's 7 previous pays.
3	Waiting for materials Imperfect materials	Day rate, determined by averaging the weaver's 3 previous pays, and ranging from 3.25 marks (77 cents) to 5 marks ($1.19) per day.
4a	Waiting for materials	15 pfennigs (4 cents) per loom and per hour after the sixth hour.
4b	....do	½ the day rate (average pay for last 6 weeks) after the sixth hour.
	Imperfect yarns	An average pay on corresponding class of goods.
5	Waiting for materials	Day rate, from 3.50 marks (83 cents) to 4 marks (95 cents) per day.
6	Change of work	40 pfennigs (10 cents) per hour or may work on another loom.
12	Waiting for materials, pattern weaving.	15 pfennigs per hour (3.6 cents).
18 and 20	Imperfect warps	Average pay for last 3 months. New weaver would receive at least 3 marks (71 cents) per day.
28	Waiting for materials	35 pfennigs (8 cents) per hour if over 21 years old; 30 pfennigs (7 cents) per hour if under 21 years old.
31	Waiting for repairs	Day rate 2.60 marks (62 cents) per day, after second hour.
	Waiting for materials	Must begin work on another loom or gets at rate of 2.60 marks (62 cents) per day. When defective material such as warps, weft, or harnesses have to be made ready, the weaver goes on an average wage rate of last 6 pays.
51	Waiting for material	After 4 hours must be provided with other weaving work, if possible, that is equally remunerative, or be given other kind of work at regular pay for that work.
60, 61, 62, and 63.	Waiting for materials	10 pfennigs (2 cents) per loom per hour after fifth hour.
63	Weaving on Wechselloom	33 per cent added for male weavers.

As elsewhere stated the Gera-Greiz wage scales were reduced to a 1,000 pick basis for purposes of comparison in Tables 8 and 9. This was done, however, on the arbitrary basis of assuming the minimum width in the reed to which a rate applied. To make this matter clear and to enable anyone to figure out for himself the weaver's rate on any given cloth in the Gera district, a translation of this exceedingly elaborate and complicated scale is here presented. This wage scale is based upon a 100,000 meters of weft yarn woven into cloth on the loom. Of course, the width of the cloth in the reed must be known before any estimate can be made of how many picks a 100,000 meters of yarn would yield. The scale provides for different rates, for different widths on the reed, but in Tables 8 and 9 it was reduced to 1,000 picks at the breaking point of rates. That is to say, if the rate was for a reed space of 55 inches or over, the 1,000 pick rate was calculated at 55 reed space; for the reason that Tables 8 and 9 are for the purpose of comparing basic rates, and basic rates are either minimum rates or are on a specific cloth taken as a standard of pay.

The following is a translation of the scale itself, and in it the money payments have been retained in marks and pfennigs, or rather, marks and decimals of a mark ($0.238), for lack of time to prepare it in any other form:

TABLE 15.—*Minimum wage schedule for woolen raw goods in force for mills of the United Sachsische-Thuringischer weaving mills from August 6, 1911.*

		Local Group I (Gera).					
	Position No.	Goods of more than 39½ inches reed space.		Goods of more than 35½ inches up to 39½ inches reed space.		Goods of 35½ inches and less reed space.	
		Single.	Twist.	Single.	Twist.	Single.	Twist.
LOCAL GROUPS I AND II.							
1. Kaschmier:		*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Less than 300 ends to 5½ inches up to 55 inches reed space	1	2.05	1.95	2.20	2.10	2.25	2.15
Less than 300 ends to 5½ inches above 55 inches reed space	2	2.00	1.90	......	......	......	......
300–340 ends to 5½ inches up to 55 inches reed space	3	2.15	2.05	2.30	2.20	2.35	2.25
300–340 ends to 5½ inches above 55 inches reed space	4	2.10	2.00	......	......	......	......
More than 340 ends to 5½ inches up to 55 inches reed space	5	2.25	2.15	2.45	2.30	2.50	2.35
More than 340 ends to 5½ inches above 55 inches reed space	6	2.20	2.10	......	......	......	......
LOCAL GROUP III.							
1. Kaschmier:							
Kaschmier, long	7	2.00	2.00	2.15	2.15	2.20	2.20
Long, rips, 2 ends per dent	8	2.30	2.30	2.50	2.50	2.55	2.55
2a. Tibet (worsted merino) 4-harness twill:							
Less than 360 ends to 5½ inches up to 55 inches reed space	9	2.20	2.10	2.35	2.25	2.45	2.30
Less than 360 ends to 5½ inches above 55 inches reed space	10	2.10	2.05	......	......	......	......
360 ends and more to 5½ inches up to 55 inches reed space	11	2.45	2.30	2.65	2.50	2.70	2.55
360 ends and more to 5½ inches above 55 inches reed space	12	2.30	2.20	......	......	......	......
2b. Worsted, croise and foules:							
Inclusive, 440 ends to 5½ inches up to 51 inches reed space	13	2.55	2.40	2.75	2.60	2.80	2.65
Inclusive, 440 ends to 5½ inches above 51 inches reed space	14	2.40	2.25	......	......	......	......
More than 440 ends to 5½ inches up to 51 inches reed space	15	2.75	2.65	2.95	2.85	......	......
More than 440 ends to 5½ inches above 51 inches reed space	16	2.60	2.50	......	......	......	......
2c. Worsted, twill, 5 and 6 harness:							
Inclusive, 440 ends to 5½ inches	17	2.75	2.65	2.95	2.85	3.05	2.90
More than 440 ends to 5½ inches	18	2.85	2.75	3.05	2.95	3.15	3.05

TABLE 15.—*Minimum wage schedule for woolen raw goods in force for mills of the United Sachsische-Thuringischer weaving mills from August 6, 1911*—Continued.

	Position No.	Local Group I (Gera).					
		Goods of more than 39½ inches reed space.		Goods of more than 35½ inches up to 39½ inches reed space.		Goods of 35½ inches and less reed space.	
		Single.	Twist.	Single.	Twist.	Single.	Twist.
LOCAL GROUP III—continued.							
2*d*. Cheviot, twill, 4-6 harness:		*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Inclusive, 320 ends to 5½ inches reed space	19	2.70	2.50	2.90	2.70	3.00	2.75
More than 320 ends to 5½ inches reed space	20	2.90	2.70	3.15	2.90	3.20	3.00
2*e*. Worsted, warp twill, 4 harness (3 up, 1 down):							
Inclusive, 440 ends to 5½ inches reed space	21	2.85	2.75	3.05	2.95	3.15	3.05
More than 440 ends to 5½ inches reed space	22	3.00	2.90	3.25	3.10	3.30	3.20
3. Kaschmier, serge, 3-harness weave:							
Inclusive, 400 ends to 5½ inches reed space	23	3.20	3.10	3.45	3.35	3.50	3.40
Inclusive, 480 ends to 5½ inches reed space	24	3.30	3.20	3.55	3.45	3.65	3.50
More than 480 and up to 590 ends to 5½ inches reed space	25	3.55	3.45	3.80	3.70	3.90	3.80
600 ends and more to 5½ inches reedspace	26	3.85	3.75	4.15	4.05	4.25	4.15
4. Satin, filling Atlas (all wool):							
Up to 47½ inches reed space	27	2.35	2.25	2.55	2.45	2.60	2.50
Above 47½ inches reed space	28	2.25	2.15	......	......	......	......
5. Warp, Atlas and whipcord for cam looms:							
Up to 480 ends to 5½ inches reed space	29	3.15	2.95	3.40	3.20	3.45	3.25
Up to 540 ends to 5½ inches reed space	30	3.35	3.15	3.60	3.40	3.70	3.45
More than 540 ends and less than 600 ends to 5½ inches reed space	31	3.60	3.35	3.85	3.60	3.95	3.70
600 ends and more to 5½ inches reed space	32	3.90	3.70	4.20	4.00	4.30	4.05
6*a*. Musselin:							
Up to 280 ends inclusive to 5½ inches reed space	33	2.55	2.55	2.75	2.75	2.80	2.80
Above 280 ends up to 360 ends to 5½ inches reed space	34	2.75	2.65	2.95	2.85	3.05	2.90
Above 360 ends up to 400 ends to 5½ inches reed space	35	2.95	2.85	3.20	3.05	3.25	3.15
Above 400 ends to 5½ inches	36	3.50	3.25	3.75	3.50	3.85	3.60
6*b*. Narrow Elsasser print, musselins	37	......	......	2.95	2.95	3.05	3.05
With inside selvage (double pieces)	38	2.00	2.00	......	......	......	......
LOCAL GROUPS II AND III.							
7*a*. Voile, musselin:							
Up to yarn No. 22 (English worsted No.)	39	3.95	3.95	4.25	4.25	4.35	4.35
Above yarn No. 22 (English worsted No.)	40	3.30	3.10	3.55	3.35	3.65	3.40
Above yarn No. 48 (English worsted No.)	41	3.95	......	4.25	......	4.35	......
7*b*. Voile, jacquards:							
Up to yarn No. 22 (English worsted No.)	42	5.30	5.30	5.70	5.70	5.85	5.85
Above yarn No. 22 (English worsted No.)	43	4.65	4.45	5.00	4.80	5.10	4.90
Above yarn No. 48 (English Worsted No.), single warp	41	5.05	......	5.45	......	5.55	......
7*c*. Etamines:							
Up to yarn No. 9 (English worsted No.)	45	7.95	6.90	8.55	7.40	8.75	7.60
Above yarn No. 9 (English worsted No.) up to 13½ (English worsted No.)	46	6.90	5.85	7.40	6.30	7.60	6.45
8. Coating for confection (Tibet with lining), harness	47	3.30	3.10	3.55	3.35	3.65	3.40
9. Corkscrew for confection:							
Up to 500 ends to 5½ inches reed space	48	3.75	3.55	4.05	3.80	4.15	3.90
Up to 560 ends to 5½ inches reed space	49	3.85	3.55	4.15	3.80	4.25	3.90
Above 560 up to 640 ends to 5½ inches reed space	50	3.95	3.65	4.25	3.95	4.35	4.00
10. Armures, with more than 109 picks per inch (filling faced)	51	2.80	2.70	3.00	2.90	3.10	2.95
11. Head-motion looms (with exception of those articles under No. 15):							
Less than 400 ends to 5½ inches	52	3.20	3.20	3.45	3.45	3.50	3.50
With cheviot yarn warp	53	3.30	......	3.55	......	3.65	......
400 ends and less than 480 ends to 5½ inches reed space	54	3.35	3.25	3.60	3.50	3.70	3.60
With cheviot yarn warp	55	3.50	......	3.75	......	3.85	......
480 ends and less than 600 ends to 5½ inches reed space	56	3.55	3.45	3.80	3.70	3.90	3.80
600 ends and less than 720 ends to 5½ inches reed space	57	3.85	3.65	4.15	3.95	4.25	4.00
720 ends and inclusive 800 ends to 5½ inches reed space	58	4.25	3.95	4.55	4.25	4.70	4.35
Above 800 ends to 5½ inches reed space	59	4.75	4.45	5.10	4.80	5.25	4.90

Table 15.—*Minimum wage schedule for woolen raw goods in force for mills of the United Sachsische-Thuringischer weaving mills from August 6, 1911*—Continued.

	Local Group I (Gera).						
	Position No.	Goods of more than 39½ inches reed space.		Goods of more than 35½ inches up to 39½ inches reed space.		Goods of 35½ inches and less reed spoce.	
		Single.	Twist.	Single.	Twist.	Single.	Twist.
LOCAL GROUP I.							
		Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
For 13 harness and more, 20 pfennig additional per 100.950 yard filling	60	......	......	......	......	......	......
12. Plain jacquard with less than 480 ends per 5½ inches reed space	61	3.70	3.60	4.00	3.85	4.05	3.95
With cheviot yarn warp	62	3.80	......	4.10	......	4.20	......
480 ends and less than 560 ends to 5½ inches reed space	63	3.95	3.85	4.25	4.15	4.35	4.25
With cheviot yarn warp	64	4.05	......	4.35	......	4.45	......
560 ends and more to 5½ inches reed space	65	4.20	4.10	4.50	4.40	4.60	4.50
13. Jacquard 1 à 1 worsted with silk or chappe imitation up to 480 ends to 5½ inches reed space	66	4.00	4.00	4.30	4.30	4.40	4.40
Above 480 ends to 5½ inches reed space	67	4.15	4.15	4.45	4.45	4.55	4.55
14*a*. Jacquard 1 à 1 worsted or cotton with mohair, camel hair, luster or weft (with exception of so-called staple half-wool luster):							
Light weave	68	4.40	4.40	4.75	4.75	4.85	4.85
Musselin ground with 400 ends to 5½ inches reed space inclusive	69	4.95	4.95	5.30	5.30	5.45	5.45
Double motion, 1 pick	70	6.50	6.50	7.00	7.00	7.15	7.15
Above 400 ends to 5½ inches reed space	71	5.25	5.25	5.65	5.65	5.75	5.75
Double motion, 1 pick	72	6.95	6.95	7.45	7.45	7.65	7.65
LOCAL GROUP III.							
15*a*. All mohair, camel hair, luster, or weft, head motion looms:							
Up to 320 ends to 5½ inches reed space	73	3.90	3.90	4.20	4.20	4.30	4.30
More than 320 ends up to 400 ends to 5½ inches reed space	74	4.55	4.55	4.90	4.90	5.00	5.00
Double motion, 1 pick	75	6.25	6.25	6.70	6.70	6.85	6.85
Above 400 ends to 5½ inches reed space	76	4.95	4.95	5.30	5.30	5.45	5.45
Double motion, 1 pick	77	6.50	6.50	7.00	7.00	7.15	7.15
LOCAL GROUP II.							
6. All mohair, camel hair, luster, or weft on jacquard:							
Up to 320 ends, inclusive, to 5½ inches reed space.	78	......	4.95	......	5.30	......	5.45
Up to 400 ends, inclusive, to 5½ inches reed space.	79	......	5.20	......	5.60	......	5.70
Double motion, 1 pick	80	......	7.05	......	7.60	......	7.75
Above 400 ends to 5½ inches reed space	81	......	5.45	......	5.85	......	6.00
Double motion, 1 pick	82	......	7.30	......	7.85	......	8.05
17*a*. Indian worsted—Yarn shales with warp fringes (with filling border) above 49½ inches reed space	83	1.95	1.90	......	......	......	......
17*b*. Indian cheviot shales with warp fringes (with filling border)	84	2.20	2.10	......	......	......	......
17*c*. Indian raw—Shales	85	2.20	2.45	......	......	......	......
LOCAL GROUPS II AND III.							
18. Ripse with double motion, 1 pick:							
18*a*. With single filling	86	5.10	4.85	5.50	5.20	5.60	5.35
18*b*. With double and triple spooled filling—							
22½ (English worsted No.)	87	......	5.75	......	6.20	......	6.30
22½–18 (English worsted No.)	88	......	6.30	......	6.75	......	6.95
18–13½ (English worsted No.)	89	......	7.40	......	7.95	......	8.15
Below 13½ (English worsted No.)	90	......	9.05	......	9.75	......	9.95
19. Ladies' cloth (worsted warp with woolen filling) Kaschmier weave	91	3.00	2.80	3.25	3.00	3.30	3.10
Atlas less than 480 ends to 5½ inches reed space	92	3.55	3.30	3.80	3.55	3.90	3.65
Atlas 480 ends and more than 500 ends to 5½ inches reed space	93	3.75	3.55	4.05	3.80	4.15	3.90

TABLE 15.—*Minimum wage schedule for woolen raw goods in force for mills of the United Sachsische-Thuringischer weaving mills from August 6, 1911*—Continued.

		Local Group II (Greiz).					
	Position No.	Goods of more than 39½ inches reed space.		Goods of more than 35½ inches up to 39½ inches reed space.		Goods of 35½ inches and less reed space.	
		Single.	Twist.	Single.	Twist.	Single.	Twist.
LOCAL GROUPS I AND II.							
1. Kaschmier:		*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Less than 300 ends to 5½ inches up to 55 inches reed space	1	2.05	1.95	2.20	2.10	2.25	2.15
Less than 300 ends to 5½ inches above 55 inches reed space	2	2.00	1.90	......	......	......	......
300–340 ends to 5½ inches up to 55 inches reed space	3	2.15	2.05	2.30	2.20	2.35	2.25
300–340 ends to 5½ inches above 55 inches reed space	4	2.10	2.00	......	......	......	......
More than 340 ends to 5½ inches up to 55 inches reed space	5	2.25	2.15	2.45	2.30	2.50	2.40
More than 340 ends to 5½ inches above 55 inches reed space	6	2.20	2.10	......	......	......	......
LOCAL GROUP III.							
1. Kaschmier:							
Kaschmier, long	7	2.00	2.00	2.15	2.15	2.20	2.20
Long, rips, 2 ends per dent	8	2.30	2.30	2.50	2.50	2.55	2.55
2*a*. Tibet (worsted merino), 4-harness twill:							
Less than 360 ends to 5½ inches, up to 55 inches reed space	9	2.10	2.05	2.25	2.20	2.30	2.25
Less than 360 ends to 5½ inches, above 55 inches reed space	10	2.10	2.05	......	......	......	......
360 ends and more to 5½ inches, up to 55 inches reed space	11	2.30	2.20	2.50	2.35	2.55	2.45
360 ends and more to 5½ inches, above 55 inches reed space	12	2.25	2.20	......	......	......	......
2*b*. Worsted, croise and foules:							
Inclusive, 440 ends to 5½ inches, up to 51 inches reed space	13	2.55	2.40	2.75	2.60	2.80	2.65
Inclusive, 440 ends to 5½ inches, above 51 inches reed space	14	2.40	2.25	......	......	......	......
More than 440 ends to 5½ inches, up to 51 inches reed space	15	2.65	2.55	2.85	2.75	2.90	2.80
More than 440 ends to 5½ inches, above 51 inches reed space	16	2.50	2.40	......	......	......	......
2*c*. Worsted, twill, 5 and 6 harness:							
Inclusive, 440 ends to 5½ inches	17	2.65	2.55	2.85	2.75	2.90	2.80
More than 440 ends to 5½ inches	18	2.75	2.65	2.95	2.85	3.05	2.90
2*d*. Cheviot, twill, 4–6 harness:							
Inclusive 320 ends to 5½ inches reed space	19	2.60	2.40	2.80	2.60	2.85	2.65
More than 320 ends to 5½ inches reed space	20	2.80	2.60	3.00	2.80	3.10	2.85
2*e*. Worsted, warp twill, 4-harness (3 up, 1 down):							
Inclusive, 440 ends to 5½ inches reed space	21	2.85	2.75	3.05	2.95	3.15	3.05
More than 440 ends to 5½ inches reed space	22	3.00	2.90	3.25	3.10	3.30	3.20
3. Kaschmier, serge, 3-harness weave:							
Inclusive, 400 ends to 5½ inches reed space	23	3.20	3.10	3.45	3.35	3.50	3.40
Inclusive, 480 ends to 5½ inches reed space	24	3.30	3.20	3.55	3.45	3.65	3.50
More than 480 and up to 590 ends to 5½ inches reed space	25	3.45	3.35	3.70	3.60	3.80	3.70
600 ends and more to 5½ inches reed space	26	3.75	3.65	4.05	3.95	4.15	4.00
4. Satin filling atlas (all wool):							
Up to 47½ inches reed space	27	2.35	2.25	2.55	2.45	2.60	2.50
Above 47½ inches reed space	28	2.25	2.15	......	......	......	......
5. Warp, atlas and whipcord for cam looms:							
Up to 480 ends to 5½ inches reed space	29	3.10	2.90	3.35	3.10	3.40	3.20
Up to 540 ends to 5½ inches reed space	30	3.25	3.05	3.50	3.30	3.60	3.35
More than 540 ends and less than 600 ends to 5½ inches reed space	31	3.55	3.30	3.80	3.55	3.90	3.65
600 ends and more to 5½ inches reed space	32	3.90	3.70	4.20	4.00	4.30	4.05
6*a*. Musselin:							
Up to 280 ends inclusive to 5½ inches reed space	33	2.55	2.55	2.75	2.75	2.80	2.80
Above 280 ends up to 360 ends to 5½ inches reed space	34	2.75	2.65	2.95	2.85	3.05	2.90
Above 360 ends up to 400 ends to 5½ inches reed space	35	2.95	2.85	3.20	3.05	3.25	3.15
Above 400 ends to 5½ inches	36	3.50	3.25	3.75	3.50	3.85	3.60
6*b*. Narrow Elsasser print, musselins	37	......	......	2.75	2.75	2.75	2.75
With inside selvage (double pieces)	38	2.00	2.00	......	......	......	......

TABLE 15.—*Minimum wage schedule for woolen raw goods in force for mills of the United Sachsische-Thuringischer weaving mills from August 6, 1911*—Continued.

		Local Group II (Greiz).					
	Position No.	Goods of more than 39½ inches reed space.		Goods of more than 35½ inches up to 39½ inches reed space.		Goods of 35½ inches and less reed space.	
		Single.	Twist.	Single.	Twist.	Single.	Twist.
LOCAL GROUPS II AND III.							
Plauensche musselins:		*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Up to 51 inches reed space	39	2.00	2.00	2.15	2.15	2.20	2.20
Above 51 inches up to 63 inches reed space	40	1.90	1.90	......	......	......	......
More than 63 inches reed space	41	1.80	1.80	......	......	......	......
6*c*. Japan musselins:							
32½ inches to 37 inches reed space	42	......	......	2.30	2.30	......	......
With inside selvage (double pieces)	43	2.00	2.00	......	......	......	......
7*a*. Voile, musselin:							
Up to yarn No. 22 (English worsted No.)	44	3.85	3.85	4.15	4.15	4.25	4.25
Above yarn No. 22 (English worsted No.)	45	3.00	3.00	3.25	3.25	3.30	3.30
Above yarn No. 48 (English worsted No.)	46	3.95	......	4.25	......	4.35	......
7*b*. Voile, jacquards:							
Up to yarn No. 22 (English worsted No.)	47	5.20	5.20	5.60	5.60	5.70	5.70
Above yarn No. 22 (English worsted No.)	48	4.35	4.35	4.70	4.70	4.80	4.80
Above yarn No. 48 (English worsted No.), single warp	49	5.05	......	5.45	......	5.55	......
7*c*. Etamines:							
Up to yarn No. 9 (English worsted No.)	50	6.95	6.90	7.45	7.40	7.65	7.60
Above yarn No. 9 (English worsted No.) up to 13½ (English worsted No.)	51	5.90	5.85	6.35	6.30	6.50	6.45
8. Coating for confection (Tibet with lining), harness.	52	3.20	3.00	3.45	3.25	3.50	3.30
9. Corkscrew for confection:							
Up to 500 ends to 5½ inches reed space	53	3.65	3.45	3.95	3.70	4.00	3.80
Up to 560 ends to 5½ inches reed space	54	3.75	3.45	4.05	3.70	4.15	3.80
Above 560 up to 640 ends to 5½ inches reed space.	55	3.95	3.55	4.25	3.80	4.35	3.90
10. Armures, with more than 109 picks per inch (filling faced)	56	2.80	2.70	3.00	2.90	3.10	2.95
11. Head-motion looms (with exception of those articles under No. 15):							
Less than 400 ends to 5½ inches	57	3.20	3.20	3.45	3.45	3.50	3.50
With cheviot yarn warp	58	3.30	......	3.55	......	3.65	......
400 ends and less than 480 ends to 5½ inches reed space	59	3.35	3.25	3.60	3.50	3.70	3.60
With cheviot yarn warp	60	3.50	......	3.75	......	3.85	......
480 ends and less than 600 ends to 5½ inches reed space	61	3.55	3.45	3.80	3.70	3.90	3.80
600 ends and less than 720 ends to 5½ inches reed space	62	3.85	3.65	4.15	3.95	4.25	4.00
720 ends and inclusive 800 ends to 5½ inches reed space	63	4.25	3.95	4.55	4.25	4.70	4.35
Above 800 ends to 5½ inches reed space	64	4.75	4.45	5.10	4.80	5.25	4.90
LOCAL GROUP I.							
12. Plain jacquard with less than 480 ends per 5½ inches reed space	65	3.70	3.60	4.00	3.85	4.05	3.95
With cheviot yarn warp	66	3.80	......	4.10	......	4.20	......
480 ends and less than 560 ends to 5½ inches reed space	67	3.95	3.85	4.25	4.15	4.35	4.25
With cheviot yarn warp	68	4.05	......	4.35	......	4.45	......
560 ends and more to 5½ inches reed space	69	4.20	4.10	4.50	4.40	4.60	4.50
13. Jacquard 1 and 1 worsted with silk or chappe imitation up to 480 ends to 5½ inches reed space.	70	4.00	4.00	4.30	4.30	4.40	4.40
Above 480 ends to 5½ inches reed space	71	4.15	4.15	4.45	4.45	4.55	4.55
14*a*. Jacquard 1 and 1 worsted or cotton with mohair, camel hair, luster, or weft (with exception of so-called staple half-wool luster):							
Light weave	72	4.30	4.30	4.60	4.60	4.75	4.75
Musselin ground with 400 ends to 5½ inches reed space inclusive	73	4.70	4.70	5.05	5.05	5.15	5.15
Double motion, 1 pick	74	6.50	6.50	7.00	7.00	7.15	7.15
Above 400 ends to 5½ inches reed space	75	5.15	5.15	5.55	5.55	5.65	5.65
Double motion, 1 pick	76	6.95	6.95	7.45	7.45	7.65	7.65

TABLE 15.—*Minimum wage schedule for woolen raw goods in force for mills of the United Sachsische-Thuringischer weaving mills from August 6, 1911*—Continued.

	Position No.	Local Group II (Greiz).					
		Goods of more than 39½ inches reed space.		Goods of more than 35½ inches up to 39½ inches reed space.		Goods of 35½ inches and less reed space.	
		Single.	Twist.	Single.	Twist.	Single.	Twist.
LOCAL GROUP III.							
15*a*. All mohair, camel hair, luster, or weft, head motion looms:		*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Up to 320 ends to 5½ inches reed space	77	3.90	3.90	4.20	4.20	4.30	4.30
More than 320 ends up to 400 ends to 5½ inches reed space	78	4.35	4.35	4.70	4.70	4.80	4.80
Double motion, 1 pick	79	6.25	6.25	6.70	6.70	6.85	6.85
Above 400 ends to 5½ inches reed space	80	4.65	4.65	5.00	5.00	5.10	5.10
Double motion, 1 pick	81	6.50	6.50	7.00	7.00	7.15	7.15
LOCAL GROUP II.							
14*b*. Rips, crepe:							
No higher wages for wide goods inclusive 520 ends to 5½ inches reed space	82	4.20	4.20	4.20	4.20	4.20	4.20
Above 320 ends to 5½ inches reed space increase for wide goods	83	4.20	4.20	4.50	4.50	4.60	4.60
Double motion, 1 pick (for all widths and grades)	84	6.20	6.20	6.20	6.20	6.20	6.20
16. All mohair, camel hair, luster, or weft on jacquard:							
Up to 320 ends, inclusive, to 5½ inches reed space.	85	4.95	4.95	5.30	5.30	5.45	5.45
Up to 400 ends, inclusive, to 5½ inches reed space.	86	4.95	4.95	5.30	5.30	5.45	5.45
Double motion, 1 pick	87	7.05	7.05	7.60	7.60	7.75	7.75
Above 400 ends to 5½ inches reed space	88	5.20	5.20	5.60	5.60	5.70	5.70
Double motion, 1 pick	89	7.30	7.30	7.85	7.85	8.05	8.05
17*a*. Indian worsted—Yarn shales with warp fringes (with filling border) above 49½ inches reed space.	90	1.95	1.90	......	......	......	......
17*b*. Indian cheviot shales with warp fringes (with filling border)	91	2.20	2.10	......	......	......	......
LOCAL GROUPS II AND III.							
With colored borders (inclusive filling border)	92	2.20	2.45	......	......	......	......
18. Ripse with double motion, 1 pick:							
18*a*. With single filling	93	5.10	4.85	5.50	5.20	5.60	5.35
18*b*. With double and triple spooled filling—							
22½ (English worsted No.)	94	......	5.75	......	6.20	......	6.30
22½-18 (English worsted No.)	95	......	6.30	......	6.75	......	6.95
18-13½ (English worsted No.)	96	......	7.40	......	7.95	......	8.15
Below 13½ (English worsted No.)	97	......	9.05	......	9.75	......	9.95
19. Ladies' cloth (worsted warp with woolen filling) Kaschmier weave	98	3.00	2.80	3.25	3.00	3.30	3.10
Atlas less than 480 ends to 5½ inches reed space	99	3.35	3.10	3.60	3.35	3.70	3.40
Atlas 480 ends and more than 500 ends to 5½ inches reed space	100	3.55	3.35	3.80	3.60	3.90	3.70

TABLE 15.—*Minimum wage schedule for woolen raw goods in force for mills of the United Sachsische-Thuringischer weaving mills from August 6, 1911*—Continued.

	Position No.	Local Group III.					
		Goods of more than 39½ inches reed space.		Goods of more than 35½ inches up to 39½ inches reed space.		Goods of 35½ inches and less reed space.	
		Single.	Twist.	Single.	Twist.	Single.	Twist.
LOCAL GROUP III.							
1. Kaschmier:		*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Up to 320 ends to 5½ inches reed space	1	1.95	1.85	2.10	2.00	2.15	2.05
Up to 320 ends to 5½ inches reed space of 55 inches and above	2	1.90	......	......	......	......	......
Above 320 ends to 5½ inches reed space	3	2.05	1.95	2.20	2.10	2.25	2.15
Kaschmier, long	4	1.85	1.85	2.00	2.00	2.05	2.05
2a. Tibet (worsted merino), 4-harness twill:							
Less than 360 ends to 5½ inches, up to 55 inches reed space	5	2.00	1.90	2.15	2.05	2.20	2.10
Less than 360 ends to 5½ inches, above 55 inches reed space	6	2.00	1.90	......	......	......	......
360 ends and more to 5½ inches, up to 55 inches reed space	7	2.10	2.05	2.25	2.20	2.30	2.25
360 ends and more to 5½ inches, above 55 inches reed space	8	2.05	2.05	......	......	......	......
2b. Worsted, croise and foules:							
Inclusive, 440 ends to 5½ inches, up to 51 inches reed space	9	2.40	2.25	2.60	2.40	2.65	2.50
Inclusive, 440 ends to 5½ inches, above 51 inches reed space	10	2.25	2.10	......	......	......	......
More than 440 ends to 5½ inches, up to 51 inches reed space	11	2.50	2.40	2.70	2.60	2.75	2.65
More than 440 ends to 5½ inches, above 51 inches reed space	12	2.35	2.25	......	......	......	......
2c. Worsted, twill, 5 and 6 harness:							
Inclusive, 440 ends to 5½ inches	13	2.40	2.30	2.60	2.50	2.65	2.55
More than 440 ends to 5½ inches	14	2.50	2.40	2.70	2.60	2.75	2.65
2d. Cheviot, twill, 4-6 harness:							
Inclusive, 320 ends to 5½ inches reed space	15	2.50	2.30	2.70	2.50	2.75	2.55
More than 320 ends to 5½ inches reed space	16	2.70	2.50	2.90	2.70	3.00	2.75
2e. Worsted, warp twill, 4 harness (3 up, 1 down):							
Inclusive, 440 ends to 5½ inches reed space	17	2.85	2.75	3.05	2.95	3.15	3.05
More than 440 ends to 5½ inches reed space	18	3.00	2.90	3.25	3.10	3.30	3.20
3. Kaschmier, serge, 3-harness weave:							
Inclusive, 400 ends to 5½ inches reed space	19	3.05	2 95	3.30	2.20	3.35	3.25
Inclusive, 480 ends to 5½ inches reed space	20	3.15	3.05	3.40	3.30	3.45	3.35
More than 480 and up to 590 ends to 5½ inches reed space	21	3.35	3.25	3.60	3.50	3.70	3.60
600 ends and more to 5½ inches reed space	22	3.75	3.65	4.05	3.95	4.15	4.00
4. Satin, filling atlas (all wool):							
Up to 47½ inches reed space	23	2.15	2.05	2.30	2.20	2.35	2.25
Above 47½ inches reed space	24	2.05	1.95	......	......	......	......
5. Warp, atlas and whipcord for cam looms:							
Up to 480 ends to 5½ inches reed space	25	2.95	2.75	3.20	2.95	3.25	3.05
Up to 540 ends to 5½ inches reed space	26	3.10	2.90	3.35	3.10	3.40	3.20
More than 540 ends and less than 600 ends to 5½ inches reed space	27	3.40	3.15	3.65	3.40	3.75	3.45
600 ends and more to 5½ inches reed space	28	3 90	3.70	4.20	4.00	4.30	4.05
6a. Musselin:							
Up to 280 ends inclusive to 5½ inches reed space	29	2.35	2.35	2.55	2.55	2.60	2.60
Above 280 ends up to 360 ends to 5½ inches reed space	30	2.55	2.45	2.75	2.65	2.80	2.70
Above 360 ends up to 400 ends to 5½ inches reed space	31	2.75	2.65	2.95	2.85	3.05	2.90
Above 400 ends to 5½ inches	32	3.30	3.05	3.55	3.30	3.65	3.35
6b. Narrow Elsasser print, musselins	33	......	......	2.75	2.75	......	......
With inside selvage (double pieces)	34	2.00	2.00	......	......	......	......
LOCAL GROUPS II AND III.							
Plauensche musselins:							
Up to 51 inches reed space	35	2.00	2.00	2.15	2.15	2.20	2.20
Above 51 inches up to 63 inches reed space	36	1.90	1.90	......	......	......	......
More than 63 inches reed space	37	1.80	1.80	......	......	......	......
6c. Japan musselins:							
32½ inches to 37 inches reed space	38	......	......	......	......	2.30	2.30
With inside selvage (double pieces)	39	2.00	2.00	......	......	......	......

TABLE 15.—*Minimum wage schedule for woolen raw goods in force for mills of the United Sachsische-Thuringischer weaving mills from August 6, 1911*—Continued.

	Position No.	Local Group III.					
		Goods of more than 39½ inches reed space.		Goods of more than 35½ inches up to 39½ inches reed space.		Goods of 35½ inches and less reed space.	
		Single.	Twist.	Single.	Twist.	Single.	Twist.
LOCAL GROUPS II AND III—continued.							
7*a*. Voile, musselin:		*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Up to yarn No. 22 (English worsted No.)	40	3.55	3.55	3.80	3.80	3.90	3.90
Above yarn No. 22 (English worsted No.)	41	3.00	3.00	3.25	3.25	3.30	3.30
Above yarn No. 48 (English worsted No.)	42	3.75	....	4.05	....	4.15	....
7*b*. Voile, jacquards:							
Up to yarn No. 22 (English worsted No.)	43	4.70	4.70	5.05	5.05	5.15	5.15
Above yarn No. 22 (English worsted No.)	44	4.35	4.35	4.70	4.70	4.80	4.80
Above yarn No. 48 (English worsted No.), single warp	45	4.85	....	5.20	....	5.35	....
7*c*. Etamines:							
Up to yarn No. 9 (English worsted No.)	46	6.95	6.90	7.45	7.40	7.65	7.60
Above yarn No. 9 (English worsted No.) up to 13½ (English worsted No.)	47	5.90	5.85	6.35	6.30	6.50	6.45
8. Coating for confection (Tibet with lining), harness.	48	3.10	2.90	3.35	3.10	3.40	3.20
9. Corkscrew for confection:							
Up to 500 ends to 5½ inches reed space	49	3.55	3.25	3.80	3.50	3.90	3.60
Up to 560 ends to 5½ inches reed space	50	3.65	3.45	3.95	3.70	4.00	3.80
Above 560 up to 640 ends to 5½ inches reed space.	51	3.85	3.55	4.15	3.80	4.25	3.90
10. Armures, with more than 109 picks per inch (filling faced)	52	2.70	2.60	2.90	2.80	2.95	2.85
11. Head-motion looms (with exception of those articles under No. 15):							
Less than 400 ends to 5½ inches	53	3.05	3.05	3.30	3.30	3.35	3.35
With cheviot yarn warp	54	3.15	....	3.40	....	3.45	....
400 ends and less than 480 ends to 5½ inches reed space	55	3.25	3.15	3.50	3.40	3.60	3.45
With cheviot yarn warp	56	3.40	....	3.65	....	3.75	....
480 ends and less than 600 ends to 5½ inches reed space	57	3.35	3.25	3.60	3.50	3.70	3.60
600 ends and less than 720 ends to 5½ inches reed space	58	3.75	3.55	4.05	3.80	4.15	3.90
720 ends and inclusive 800 ends to 5½ inches reed space	59	4.05	3.85	4.35	4.15	4.45	4.25
Above 800 ends to 5½ inches reed space	60	4.55	4.35	4.90	4.70	5.00	4.80
LOCAL GROUP I.							
12. Plain jacquard with less than 480 ends per 5½ inches reed space	61	3.45	3.35	3.70	3.60	3.80	3.70
With cheviot yarn warp	62	3.55	....	3.80	....	3.90	....
480 ends and less than 560 ends to 5½ inches reed space	63	3.65	3.60	3.95	3.85	4.00	3.95
560 ends and more to 5½ inches reed space	64	3.85	3.75	4.15	4.05	4.25	4.15
13. Jacquard 1 and 1 worsted with silk or chappe imitation up to 480 ends to 5½ inches reed space	65	3.90	3.90	4.20	4.20	4.30	4.30
Above 480 ends to 5½ inches reed space	66	3.90	3.90	4.20	4.20	4.30	4.30
14*a*. Jacquard 1 and 1 worsted or cotton with mohair, camel hair, luster, or weft (with exception of so-called staple half-wool luster):							
Light weave	67	4.10	4.10	4.40	4.40	4.50	4.50
Musselin ground with 400 ends to 5½ inches reed space inclusive	68	4.70	4.70	5.05	5.05	5.15	5.15
Double motion, 1 pick	69	6.40	6.40	6.90	6.90	7.05	7.05
Above 400 ends to 5½ inches reed space	70	5.05	5.05	5.45	5.45	5.55	5.55
Double motion, 1 pick	71	6.70	6.70	7.20	7.20	7.35	7.35
LOCAL GROUP III.							
14*b*. Half wool luster:							
Up to 400 ends to 5½ inches reed space	72	4.45	4.45	4.80	4.80	4.90	4.90
More than 400 ends to 5½ inches reed space	73	4.80	4.80	5.15	5.15	5.30	5.30
15*a*. All mohair, camel hair, luster or weft, head motion looms:							
Up to 320 ends to 5½ inches reed space	74	....	3.60	....	3.85	....	3.95
More than 320 ends up to 400 ends to 5½ inches reed space	75	....	4.15	....	4.45	....	4.55
Double motion, 1 pick	76	....	5.75	....	6.20	....	6.30
Above 400 ends to 5½ inches reed space	77	....	4.45	....	4.80	....	4.90
Double motion, 1 pick	78	....	6.35	....	6.85	....	6.95

TABLE 15.—*Minimum wage schedule for woolen raw goods in force for mills of the United Sachsische-Turingischer weaving mills from August 6, 1911*—Continued.

	Position No.	Local Group III.					
		Goods of more than 39½ inches reed space.		Goods of more than 35½ inches up to 39½ inches reed space.		Goods of 35½ inches and less reed space.	
		Single.	Twist.	Single.	Twist.	Single.	Twist.
LOCAL GROUP II.							
16. All mohair, camel hair, luster or weft on jacquard:		*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Up to 320 ends, inclusive, to 5½ inches reed space	79	....	4.05	....	4.35	....	4.45
Up to 400 ends, inclusive, to 5½ inches reed space	80	....	4.65	....	5.00	....	5.10
Double motion, 1 pick	81	....	6.55	....	7.05	....	7.20
Above 400 ends to 5½ inches reed space	82	....	5.15	....	5.55	....	5.65
Double motion, 1 pick	83	....	7.05	....	7.60	....	7.75
17*a*. Indian worsted—Yarn shales with warp fringes (with filling border) above 49½ inches reed space.	84	1.85	1.80	....	....	....	....
17*b*. Indian cheviot shales with warp fringes (with filling border)	85	2.05	1.95	....	....	....	....
LOCAL GROUPS II AND III.							
With colored borders (inclusive filling border)	86	2.20	2.45	....	....	....	....
18. Ripse with double motion, 1 pick:							
18*a*. With single filling	87	4.70	4.45	5.05	4.80	5.15	4.90
18*b*. With double and triple spooled filling—							
22½ (English worsted No.)	88	....	5.25	....	5.65	....	5.75
22½–18 (English worsted No.)	89	....	5.75	....	6.20	....	6.30
18–13½ (English worsted No.)	90	....	6.75	....	7.25	....	7.40
Below 13½ (English worsted No.)	91	....	8.25	....	8.85	....	9.05
19. Ladies' cloth (worsted warp with woolen filling) Kaschmier weave	92	2.80	2.70	3.00	2.90	3.10	2.95
Atlas less than 480 ends to 5½ inches reed space.	93	3.15	3.00	3.40	3.25	3.45	3.30
Atlas 480 ends and more than 500 ends to 5½ inches reed space	94	3.35	3.25	3.60	3.50	3.70	3.60

For goods of vigoureux and colored warp material wages increase, as per following: All grades up to 400 ends to 5½-inch reed space 25 pfennig per 109.361 yards filling length; all grades with more then 400 ends to 5½-inch reed space 50 pfennig per 109.361 yards filling length.

This wage schedule is made out for "100 zahlen" of 1,000 meters of filling yarn each, or 109,361 yards of woven filling length.

SLOW LOOM BONUS WORK.

On the particularly slow looms, i. e., those under 70 picks per minute, women weavers are usually employed, and though the weaving rate per yard of cloth in the raw is the same, a premium or bonus is paid to the women, bringing their earnings up materially—young women, or, more properly, girls who are just beginning to weave but are not efficient enough to be put on regular work, old women, or women weavers who for any reason are satisfied to accept work on the old looms. It is said that some of the looms given to women weavers in and around Forst are 48-pick looms.

Frequently, again, the women are paid a flat day rate on these slow looms, with a bonus on production. The result of this method of working is shown in the table below. It must be admitted that these women get a remarkable production in a week out of the looms. The following table shows the result of a week's work for 18 women, working for a flat day rate on these old looms, with a bonus or premium on the amount of output produced.

The yarn counts in the table are given by the international system of numbering, which is by the thousand meters of yarn required to weigh 1 kilo; that is to say, No. 1 yarn weighs 1 kilo to 1,000 meters; No. 2 yarn requires 2,000 meters to weigh a kilo, etc. The flat rate and premium are given in marks, the total pay per week in United States money, and from this and the cloth analysis shown, the rate per 1,000 picks actually paid is shown. This shows that the manufacturer, by means of a bonus system, gets his work done on these slow looms at just about the same price per 1,000 picks, hence per yard, as he pays on other looms. In other words, by means of the flat day rate and a bonus he is able to use his out-of-date looms to an advantage, which makes him indifferent to any proposition to discard them for speedier ones. By placing the flat day rate so low (about 37½ cents per day) he puts all the emphasis on the bonus or premium, which, it will be seen, is very high compared to the day rate. It is not only a masterly speeding-up scheme, but it keeps women on the looms, whereas the newer, higher type machines would probably be operated for the most part by men.

Name of the cloth.	Loom picks per minute.	Width of cloth in inches.	Number of warp yarn.	Number of warp ends.	Number of filling yarn.	Picks per inch.	Week's production in yards.	Pay per day.	Premium per week.	Total pay for week, United States money.	Rate per 1,000 picks of filling yarn.	
											German pfennig.	United States money.
								Marks.	Marks.			
Flannel twill for coating..	60	62.2	10¾	2,700	10¾	38	139.98	1.25	3.10	$2.53	5.55	$0.0132
Molton (flannel lining)...	60	70.9	5¼	2,320	5¼	28	156.38	1.25	4.35	2.82	7.62	.0181
Do....................	60	70.9	5¼	2,300	5¼	28	156.38	1.25	4.35	2.82	7.62	.0181
Military trousering........	60	55.1	7½	2,480	6	36	136.70	1.25	4.00	2.74	6.57	.0156
Women's worsted cloth..	60	66.9	12	3,440	12	48	113.70	1.25	2.60	2.40	5.1	.0121
Twill....................	58	70.9	10¾	3,360	10¾	38	118.10	1.08	2.12	2.05	5.31	.0126
Do....................	58	62.2	10¼	2,760	10¼	38	118.10	1.08	2.50	2.14	5.5	.0122
Twill (marine jerkin).....	60	51.4	9¾	2,640	9½	41	153,10	1,25	3.40	2.59	4.8	.0116
Miners' shirting..........	57	55.1	13	2,480	14	33	117.00	1.08	3.20	2.30	6.96	.0166
Atlas for coating..........	56	57.5	11½	2,680	11½	36	122.48	1.25	3.00	2.50	6.7	.0159
Serge....................	61	55.1	11¾	3,040	10¾	51	118.11	1.25	3.30	2.57	5.0	.0119
Do....................	62	55.1	12¼	3,020	12½	43	117.02	1.25	4.00	2.74	6.3	.0150
Do....................	60	55.1	11½	3,020	12½	48	126.86	1.25	4.05	2.75	5.24	.0125
Do....................	60	55.1	11½	3,020	12½	48	131.23	1.25	3.87	2.71	4.99	.0119
Lama cloaking............	60	63.0	9¼	2,320	9	33	139.98	1.25	3.60	2.64	6.67	.0159
Striped lama cloaking....	60	63.0	9	2,320	9	30	131.23	1.25	3.20	2.55	7.43	.0177
Lama cloaking (lining)...	61	70.9	9½	2,600	8½	28	131.23	1.25	3.60	2.64	8.4	.02
Do....................	61	66.9	9½	2,500	9¼	38	153.10	1.25	4.30	2.81	5.6	.0133

By reference to Table 16 further study of German weavers' earnings and efficiency may be made. That table presents the work of individual weavers on specific cloths described in the table. For the most part small samples of the weaves described are in possession of the Tariff Board; the relation of wages to output on specific weaves is there brought out.

Supplementing the foregoing tabulation of German weavers' wage scales, a number of efficiency tests were secured on specifically described fabrics, the output of weavers was ascertained, together with the rate of pay per yard and earnings per hour on that specific fabric, and in many cases the speed of the loom and the percentage of loss between the actual and the theoretical production.

That is to say, if on a 100-pick loom the weaver actually produces 60 picks in a minute, the loss is 40 picks, and the actual production is 60 per cent of the theoretical efficiency. Not all of the cards gave the full data to enable us to bring out this point, but enough did so to enable the reader to get a fairly good idea of the general efficiency of German weavers.

Samples of the raw weave as described in the table in practically every case are in the possession of the board.

TABLE 16.—*Description of loom, hours, rates and earnings of weavers, description of cloth*

District.	Card No.	Looms.					Hours, rates, and earnings.		
		Number of looms attended.	Single or double beam work.	Number of shuttles.	Number of harness.	Picks per minute.	Hours worked.	Piece price per yard.	Earnings per hour.
Gera	1	2	1	1	8	95	....	$0.0353	$0.0904
Do	2	2	1	1	6	110	....	.0386	.1247
Do	3	2	....	1	6	110	....	.0341	.1332
Do	4	2	1	1	4	110	....	.0328	.1290
Do	5	2	1	1	4	110	28.5	.0234	.0975
Do	6	2	1	1	8	95	....	.0558	.0952
Do	7	2	1	1	4	110	....	.0166	.0952
Do	8	2	1	1	8	110	28.0	.0279	.1133
Do	9	2	1	1	4	108	25.0	.0279	.1361
Do	10	2	1	1	8	110	....	.0286	.1209
Do	11	2	1	1	8	115	....	.0277	.0871
Do	12	2	1	1	4	120	20.0	.0342	.1114
Do	13	2	1	1	6	110	....	.0251	.1276
Do	14	2	1	1	5	120	32.0	.0288	.1081
Do	15	2	1	1	4	120	....	.0253	.1200
Do	16	2	2	1	4	115	....	.0255	.0990
Do	17	2	1	3	4	90	....	.0610	.1428
Do	18	2	1	2	4	98	32.0	.0467	.1609
Do	19	2	2	2	16	110	....	.0406	.1299
Do	20	2	1	2	4	90	....	.0489	.1314
Do	21	2	1	2	12	90	52.0	.0591	.1380
Do	22	2	1	2	8	90	....	.0503	.1170
Do	23	2	1	2	8	115	....	.0403	.1656
Do	24	2	1	2	4	85	....	.0334	.0923
Do	25	2	1	2	5	90	....	.0367	.1671
Do	26	2	1	2-3	5	110	....	.0312	.1428
Do	27	2	2	2	8	90	....	.0416	.1452
Do	28	2	2	2	10	90	....	.0523	.1752
Do	29	2	2	1	16	110	....	.0367	.1176
Do	30	2	2	1	10	110	....	.0534	.1523
Do	31	2	1	1	13	110	....	.0442	.1161
Do	32	2	1	1	13	120	....	.0420	.1081
Do	33	2	2	1	18	95	....	.0519	.1247
Do	34	2	1	1	18	110	....	.0438	.1332
Do	35	2	2	1	8-12	120	....	.0469	.1760
Do	37	1	1	1	....	110	....	.0655	.1428
Do	38	2	3	2	....	110	....	.0326	.1175
Do	39	2	1	2	4	90	....	.0284	.1675
Do	40	2	2	2	4	85	....	.0343	.1518
Do	41	2	2	2	4	90	....	.0393	.1375
Do	42	2	1	3	4	90	....	.0403	.1347
Do	43	2	2	2	4	90	....	.0450	.1623
Do	44	2	2	1	6	115	....	.0346	.0985
Do	45	2	....	1	5	120	....	.0296	.1104
Do	46	2	2	1	6	120	30	.0221	.0976
Do	47	2	3	1	4	120	....	.0211	.1057
Do	48	2	1	1	4	115	....	.0365	.1219
Do	49	2	3	1	4	120	20	.0288	.1104
Do	50	2	2	1	4	120	....	.0213	.0876
Do	51	2	2	1	4	115	....	.0287	.1138
Do	52	2	1	1	4	120	....	.0281	.0928
Do	53	2	1	1	4	110	....	.0333	.1047
Do	54	2	1	1	4	115	....	.0301	.1081
Do	55	2	1	1	3	120	....	.0568	.0795
Do	56	2	1	1	10	115	....	.0351	.1057
Do	57	2	1	1	12	110	....	.0445	.1428
Do	58	2	2	1	12	110	....	.0209	.0714
Do	59	2	1	1	12	110	....	.0332	.1138
Do	60	2	1	1	10	120	....	.0432	.1176
Do	61	2	1	1	12	120	....	.0398	.1009
Do	62	2	2	1	12	110	35.35	.0308	.1000
Do	63	2	2	1	18	115	....	.0519	.1147
Do	64	....	1	1	8	120	....	.0383	.1271
Do	65	2	1	1	8	115	....	.0256	.1057

woven, and efficiency of looms in woolen and worsted mills in specified districts in Germany.

Description of cloth woven.							Production.	
Picks per inch.	Width in inches.	Number of ends.	Warp.		Filling.		Yards made.	Per cent of loss.
			Ply and count.	Quality.	Ply and count.	Quality.		
74	58.0	7,520	2-70	Vigognia	2-60	Cotton		40
79	65.7	5,160	2-40	Worsted	1-20	Worsted	30	30
77	63.8	5,060	2-64.5	do	1-33	do	61	30
65	59.4	3,980	2-70	Vigognia	1-35	Vigognia		30
44	61.0		1-12	Worsted	1-12	Worsted	60	50
74	57.9	7,520	2-70	Vigognia	2-60	Cotton		60
38	56.7	2,900	1-20		12 m.m.	Carded wool		40
67	59.4	31620	2-48	Worsted	2-48	Worsted	64	25
58	59.4	2,400	2-40	do	1-20	do	61	20
69	59.4	4,045	2-56a	do	12-8	do	89	20
61	64.9	3,320	2-40	do	1-20	do		20
71	68.9	4,480	2-52	do	1-26	do	39	25
60	60.2	3,900	2-36	Cotton	1-18	Cotton	63	25
74	60.2	5,200	2-80	Worsted and cotton	20 m.m.	Carded	60	30
59	63.6	3,816	2-40	Worsted	1-20	Worsted		30
78	56.9	4,120	1-42	Imitation	1-36	do	63	25
75	53.5	4,080	2-70	Vigognia	1-35	Vigognia		40
58	61.4	4,400	2-70	do	2-70	do	55	40
69	45.3	3,280	1-42 2-96	Vigognia and cotton	1-42 2-96	do Cotton	44	40
66	55.9	4,000	2-70	Vigognia	2-70	Vigognia	38	40
75	55.5	4,830	2-70	do	1-35	do	62	40
76	54.7	4,320	2-70	Vigognia and worsted	1-40	Vigognia and worsted	61	35
58	64.1	8,760	2-40	Worsted	1-20	Worsted		30
51	59.8	2,800	11-12	Carded	1-18	do	61	50
33	63.4	2,380	2-32 2-24	Worsted	1-12	Carded		50
38	64.6	4,400	2-70	Vigognia	11 m.m.	Carded	61	50
43	51.3	5,080	2-70 2-60	do Cotton	7 m.m.	do	61	50
53	55.9	6,800	2-70	Vigognia and silk imitation.	18 m.m.	Carded	68	40
65	55.9	7,660	2-52	Worsted	2-60	Silk imitation	57	40
76	54.4		2-70	Vigognia	1-40	Vigognia		40
	61.4	6,200	2-78	Worsted	1-26	Worsted	66	30
109	45.7	4,860	2-78	do	1-52	do		30
86	69.7	9,960	2-86 1-39	Left-twist worsted	1-42	do	68	35
72	69.7	10,580	2-78 1-39	Left worsted	1-26	Worsted		40
74	58.3	9,240	2-80 2-84	Cotton	2-40	Cotton		30
58	41.9	6,540	2-106	Silk	1-64	Voile		30
60	43.5	2,860	2-84	Voile	1-100	Silk	96	40
24	29.2	1,380	2-24	Moline	1-9	Nappé		50
32	62.7		2-20 2-24		2-20 2-24			50
35	59.4	2,440	2-36		2-40			50
54	45.3	2,900	2-80	Vigognia	1-28	Vigognia		40
50	59.1	3,128	2-52	do	2-80	Imitation		40
86	59.1	4,340	2-64	Worsted	1-45	Worsted		30
82	54.7	4,720	2-78	Worsted and imitation.	1-28	do	62	25
71	55.5	4,310	2-78	Worsted	1-28	do	63	25
56	56.8	3,100	1-14 2-40	Moline Twist	1-24	Twist		30
81	57.4	5,614	2-78.5 2-200	Worsted Silk	1-35	Worsted	30	30
71	59.2	4,480	2-52	Worsted	1-26	Worsted	38	30
73	55.7	4,200	1-42 2-80	Imitation	1-36	do	63	25
71	55.9	4,800	2-70 2-70	Vigognia Moline	1-40	Vigognia	39	30
84	57.4	5,080	2-78	Worsted	1-60	Worsted		30
81	55.1	5,060	2-70	do	1-40	Cheviot		30
65	52.9		1-42	do	1-40	Worsted		40
229	57.4	2,948	2-40	Cotton	1-84	do		20
89	46-1	6,640	2-86	Worsted	1-78	do		30
77	67.7	9,700	2-78	do	1-33	do	58	30
58	38.2		2-200	Silk	1-78	do	66	45
75	55.3	6,000	2-78 2-40	Worsted Cotton	1-33	do	62	80
103	45.3	5,160	2-96	Worsted	1-78	Worsted	33	30
109	45.2	5,360	2-78	do	1-60	do	41	30
71	53.5	5,080	2-70	Vigognia	1-41	Vigognia	61	40
121	45.2	5,200	2-86	Worsted	1-84	Worsted	66	30
71	59.8	5,912	2-64	Molinos	2-64	do	54	40
65	55.2	4,400	2-64	Worsted	1-34	do		30

TABLE 16.—*Description of loom, hours, rates and earnings of weavers, description of Germany—*

District.	Card No.	Looms.					Hours, rates, and earnings.		
		Number of looms attended.	Single or double beam work.	Number of shuttles.	Number of harness.	Picks per minute.	Hours worked.	Piece price per yard.	Earnings per hour.
Gera	66	2	1	1	10	110	....	$0.0317	$0.1071
Do	67	2	1	1	14	120	....	.0249	.0781
Do	68	2	2	1	11	120	....	.0208	.0776
Do	69	2	1	1	7	120	....	.0216	.0662
Do	70	2	1	1	16	115	....	.0294	.1038
Do	71	2	1	1	8	115	....	.0271	.0981
Do	72	2	1	1	8	110	106	.0754	.0919
Do	73	2	1	1	6	110	....	.0281	.0904
Do	74	2	1	1	3	120	....	.0419	.0976
Do	75	2	1	4	4	120	26	.0119	.0719
Do	76	2	1	2	4	120	30	.0234	.0856
Do	77	2	2	1	....	110	....	.0193	.1071
Do	78	....	1	1	12	120	....	.0129	.0890
Do	79	2	1	1	3	115	....	.0186	.0838
Do	80	2	2	1	4	110	....	.0359	.1261
Reichenbach	81	2	....	1	16	120	....	.0142	.0904
Do	82	....	1	2	4	93	....	.0115	.0619
Do	83	2	1	1	4	110	....	.0195	.1000
Do	84	2	1	2	4	95	20	.0200	.0904
Do	85	2	2	3	10	70	35	.0486	.1584
Do	86	2	1	1	4	120	50-52	.0148	.0686
Do	87	2	1	1	3	110	20-25	.0141	.0688
Do	88	2	1	1	4	110	12-14	.0117	.0878
Do	89	2	1	1	4	110	30	.0207	.0912
Do	90	2	1	1	8	120-130	20	.0194	.0952
Do	91	2	1	1	3	110	14	.0124	.0918
Do	92	2	1	1	4	....	30	.0198	.0872
Do	93	2	1	....	4	120-130	25	.0195	.0856
Do	94	1	2	3	10	70	35	.0545	.0887
Do	95	1	2	3	8	71	85	.1016	.0669
Do	96	1	2	6	8	75	35-40	.0638	.0952
Do	97	1-2	1	2	4	95	22-25	.0217	.0517
Do	98	2-1	1	2	4	95	20-22	.0200	.1066
Do	99	2-1	1	1	3	110	48-50	.0179	.0654
Do	100	2	1	1	4	110	20	.0132	.0654
Do	101	2	1	1	3	100	25	.0208	.0616
Do	102	2	1	1	5	120	15	.0178	.0736
Do	103	2	2	1	4	120	25-30	.0241	.0822
Do	104	2	1	1	4	....	40	.0109	.0536
Crimmitschau	105	....	1	5	16	80	....	.0864	....
Do	106	....	1	3	18	63-64	....	.0720	....
Do	107	....	1	3	18	73	....	.0886	....
Do	108	....	1	2	8	62	....	.0811	....
Do	109	....	1	4	16	81	....	.0887	....
Do	110	....	1	2	18	70	....	.0665	....
Do	111	....	1	4	20	80	....	.0849	....
Do	112	....	1	4	12	72	....	.0503	....
Do	113	....	1	3	16	76	....	.0671	....
Do	114	....	1	2	16	76	....	.0469	....
Do	115	....	1	3	18	68	....	.0587	....
Do	116	....	....	4	14	64	....	.0435	....
Do	117	....	1	1	16	56	....	.0703	....
Do	118	....	1	1	16	78	....	.0528	....
Do	119	....	1	2	16	76-78	....	.0571	....
Do	120	....	1	3	3	58	....	.0990	....
Do	121	....	1	3	16	78	....	.0959	....
Do	122	....	1	3	....	72	....	.0666	....
Do	123	....	1	3	....	....	....	.0409	....
Do	124	....	1	3	10	68	....	.0704	....
Do	125	....	1	3	12	....	....	.0435	....
Do	126	....	1	2	16	80-84	....	.0571	....
Kirchberg	127	....	1	1	4	55	....	.0255	....
Cottbus	128	....	1	4	12	74	....	.0428	....
Do	129	....	1	3	16	73	....	.0792	....
Do	130	....	1	3	16	50	....	.0865	....
Do	131	....	1	4	16	72	....	.0707	....
Roeswein (Sachsen)	132	....	1	2	4	60-65	....	.0325	....
Lynberg	134	1	1	2	12	84	30	.0559	.0912
Do	135	1	1	2	12	84	30	.0559	.0912

cloth woven, and efficiency of looms in woolen and worsted mills in specified districts in Continued.

Description of cloth woven.							Production.	
			Warp.		Filling.			
Picks per inch.	Width in inches.	Number of ends.	Ply and count.	Quality.	Ply and count.	Quality.	Yards made.	Per cent of loss.
75	55.7	4,400	2-78	Worsted	1-48	Worsted	62	30
71	45.2	3,600	1-42	Worsted left twist	1-52	do		40
64	44.1	3,560	1-42	do	1-48	do		40
58	43.1	3,290	2-70	Vigognia	1-40	Vigognia	44	40
65	54.7	3,770	2-78	do	1-41	do	62	40
65	54.7	3,720	2-70	do	1-41	do	62	40
227		4,040	2-64	Worsted	1-84	Worsted	62	25
68	53.9	3,450	2-70	Vigognia	1-41	Vigognia		40
69	51.3	3,720	2-70	do	1-40	do		40
33	50.7	3,500	1-26	Cheviot	1-18 2-28	Selvage, crossbred	60	50
69	59.4	3,620	2-70	Vigognia	1-50 2-78	Vigognia Cotton	56	35
40	45.2	3,010	2-60 2-40	Cotton Mohair	1-30	do		40
41	34.2	1,560	2-44	Cheviot	1-32	Carded		30
52	53.1	2,840	1-46	Worsted angora	16 m. m.	Woolen card		40
60	58.6		1-49 2-110	Worsted Artificial silk	1-60	Worsted	57	40
38	60.3	2,400	24-2	Cheviot	12	Carded	65	40
41			23r		23r			30
58	82.7			Worsted		Worsted	132	20
32	54.0	1,640	20		20		45	
43	57.5	2,480	18-11	Carded	18r-11r	Carded	57	
58	58.3	3,150	46	Worsted	86	Worsted	118	
47	61.0	3,070	42	do	20	Carded	55	
37	54.7	1,940	18	Carded	18	do	49	
25	66.9	2,240		Cotton		Cotton, wool	66	
56	29.5	2,000	2-78	Worsted	24	Carded	49	
38	58.3	2,160		Carded	16	do	52	
54	68.8	4,800	28	Cotton	65	Worsted	66	
45	37.2	1,600					55	
43	57.4	2,480	18-11	Carded		Carded	57	
64		3,600	20		20		56	
43		3,280	11		11		56	
30		1,670	11		11		56	
23		1,350	8 m.m.		8 m. m.		56	
48	62.1	3,360	49	Worsted	20	Carded	117	
47	55.1	2,350		Cheviot		Crossbred	49	
37			2-18	Carded	18	Vigognia	37	
49		3,560	2-40	Worsted	18	Carded	31	
81	35.7	2,280	2-78 2-80	do Cotton	65	Worsted	47	
29	52.4	1,668	8 m.m.	Carded	8 m. m.	Carded	99	
	66.9	7,300	2-54	do	2-54	Carded, lined	4	
62	61.9	6,000		Worsted		Carded	59	
86	62.9	7,000	2-48 2-80	do Cotton	1-30	Lining	55	
60	61.9	3,872	10's	Carded	13's	Carded	33	
86	66.8	7,000	2-54 2-52	Worsted	1-27 2-52 200-36	Worsted	44	
62	64.9	6,400		Piece dyed		Worsted	45	
86	66.9	5,800	2-54	Worsted	9	Carded	60	
49	68.9	3,000	9's		9's		44	
60	72.4	6,200	6-48	Worsted	6-48	Worsted	55	
47	59.1	3,600	48's		13's	Wool	56	
53	72.1	6,300	2-36		2-48		56	
41	66.9	3,480	80		17		49	
64	66.9	5,580					44	
51	70.9	6,900	2-54		13½	Carded	44	
51	70.9	6,912	2-54	Worsted	2-48	Worsted	44	
85	75.9	3,700	15		15		33	
58	66.9	5,760	48	Worsted	2/48	Worsted	44	
58	63.0	5,440	2/64 2/40	Thread	1/26	do	36	
37	47.2	2,880	2/40		12	Carded	4	
73	33.1	4,500	18		20		33	
38	48.4	3,730	3/40		12	Carded	4	
51	86.6	6,912	2/48	Worsted	2/48	Worsted and woolen.	44	
29		1,320					28	
47	68.8	3,560	15		18		55	
71	66.7	5,900	2/52		2/52	Worsted	49	
61	65.7	7,600	2/52		2/52		49	
59	66.7	7,500	2/52	Worsted	2/52	Silk thread	49	
27	106.2	2,700	8½		8		44	
58	66.7	5,200	2/44		23		49	
58	66.7	5,200		Cotton and zephyr	2/44	Cheviot	49	

TABLE 16.—*Description of loom, hours, rates and earnings of weavers, description of Germany*—

District.	Card No.	Looms.					Hours, rates, and earnings.		
		Number of looms attended.	Single or double beam work.	Number of shuttles.	Number of harness.	Picks per minute.	Hours worked.	Piece price per yard.	Earnings per hour.
Lynberg	136	1	1	1	6	72	16	$0.0204	$0.0625
Do	137	1	2	4	4	84	32	.0325	.0669
Greiz	139	2	1	1	4	100	40	.0302	.1088
Do	140	......	......	1	10	115	100	.0460	.1066
Do	141	2	1	1	6	115	56	.0208	.0884
Do	142	2	2	1	......	115	75	.0180	.0580
Do	143	2	1	1	2	115	56	.0282	.1270
Do	144	......	1	1	8	118	37	.0191	.1210
Do	145	2	1	1	12	116	56	.0169	.0736
Do	146	2	1	3	4	106	30	.0123	.0476
Do	147	2	1	1	16	105	50	.0191	.0894
Do	148	2	1	1	6	120	54	.0196	.0828
Do	149	2	1	1	4	120	23	.0121	.0766
Do	150	2	1	1	5	128	50	.0207	.0942
Do	151	2	1	1	5	123	50	.0244	.1132
Do	152	......	......	1	4	......	68	.0206	.0714
Do	153	2	2	1	18	110	50	.0419	.1024
Do	154	2	1	1	6	110	35	.0269	.0938
Do	155	2	1	1	6	110	30	.0195	.0794
Do	156	......	1	1	7	116	58	.0256	.1026
Do	157	2	1	1	6	116	78	.0279	.0842
Do	158	2	......	1	3	135	90	.0120	.0616
Do	161	2	1	1	9	117	45	.0163	.0820
Do	162	2	1	1	5	130	30	.0316	.0822
Do	163	2	1	1	9	110	50	.0185	.0856
Do	164	......	2	1	26	110	70	.0659	.1150
Do	165	2	1	1	3	134	58	.0170	.0726
Do	166	2	1	1	6	120	70	.0379	.1244
Do	167	2	1	1	13	108	56	.0550	.1138
Frieschwitz-Aubachtal	168	2	1	1	8	120	35	.0278	.0986
Greiz	169	2	1	1	5	125	58	.0185	.0770
Do	170	......	1	1	5	112	80	.0404	.1130
Do	171	2	1	1	5	112	52	.0322	.1450
Do	172	2	1	1	8	114	58	.0584	.1148
Frieschwitz-Aubachtal	173	2	1	1	13	120	45	.0449	.1200
Greiz	174	2	1	1	4	112	24	.0185	.0892
Mülhausen	176	......	1	2	10	......	......	.0147	......
Do	177	......	1	2	4	160	......	.0117	......
Do	178	......	1	2	4	160	......	.0104	......
Do	179	......	1	2	6	160	......	.0104	......
Gera	180	......	1	1	4	......	......	.0155	......
Do	181	......	1–2	[1] 4	8	80	......	.0413	......
Do	182	......	1	2	4	80	......	.0195– .0238	......
Grünberg	183	......	1	2	8	65	......	.0352	......
Do	184	......	2	2	14	64	......	.0435	......
Osterode	185	......	1	5	4	68	......	.0544	......
Do	186	......	1	6	9	58	......	.0783	......
Crimmitschau	196	1	......	3	......	......	......	.0506	......
Do	198	1	1	3	12	......	......	.0671	......
Do	199	1	1	3	18	......	......	.0872	......
Do	200	1	1	3	18	70	......	.0872	......
Do	201	1	1	1	4–8	70	25–30	.0573	.1009– .0841
Do	202	1	......	3	18	......	......	.0651	......
Do	204	1	1	3	18	80	......	.0658	......
Do	205	1	1	2	16	72	......	.0658	......
Do	208	,	1	2	16	76	35	......	.1006
Do	210	1	1	4	24	85	30	......	.1095
Do	214	1	1	......	20	80	42	......	.0907
Do	215	1	......	2	16	76	28	......	.1122
Do	216	1	1	3	12	80	42	......	.0997
Mylau	218	2	1	1	4	120	......	.0097	.0572
Do	219	2	1	1	3	120	......	.0430	.0666
Do	220	2	1	1	4	120	......	.0259	.0762
Do	221	2	1	1	4	120	......	.0097	.0762
Bautzener (Sachsen)	222	......	1	5	8	76	......	.0607	......
Do	223	......	1	5	18	90	......	.0595	......
Do	224	......	1	5	24	80	......	.0679	......
Do	225	......	1	4	8	85	......	.0627	......
Do	226	......	1	4	16	82	......	.0627	......
Ebersbach bei Göppingen	229	......	1	2	8	60	......	.0371	......
Lynberg	230	1	1	2	12	87	28	.0510	.0892
Greiz	217	2	1	1	3	120	......	.0391	.0666

[1] 2 above, 2 below.

cloth woven, and efficiency of looms in woolen and worsted mills in specified districts in Continued.

Description of cloth woven.							Production.	
			Warp.		Filling.			
Picks per inch.	Width in inches.	Number of ends.	Ply and count.	Quality.	Ply and count.	Quality.	Yards made.	Per cent of loss.
25	56.0	1,620		Worsted, cotton		Worsted	49	
41	68.8	2,500		Cotton		do	66	
65	66.7	4,936	42	Left twist	32	Carded	72	
130	49.5	3,980	49		86		116	
77	46.3	3,520	2/78	Thread	32		119	
56	36.1		49/2/75	C. I	52		121	
28	45.2		2/80	Voile	2/80	Voile	126	
52	37.4		2/40	Luster	32		116	
61	35.4		46		52	Cotton	122	
41	52.0	1,620	2/24	English	1/18	English	58	
54	36,0	1,600		Luster	33		117	
58	43.7	4,100	2/96	Thread	40		114	
54	38.9	1,960	2/40		25		73	
65	44.4	4,440	78		42		114	
71	43.7	4,400	2/78	Worsted	48		116	
81	39.6	2,560	46		78		118	
76	68.8	8,920	64	Worsted	30	Worsted	61	
62	66.8	4,440	2/40	do	B/24	do	61	
56	58.8	3,580	1/16	Cheviot	18		61	
69	43.6	5,080	2/86	Worsted	40		116	
90	53.9		2/78	Thread	48		117	
127	37.8	2,040	49	Yarn	78		115	
56	35.5	3,200	46		52		113	
99	42.7	4,520	2/86	Thread	78		39	
54	40.3	2,320	2/40	English luster	40	Cheviot	116	
118	63.3		2/78	Worsted	40	Worsted	61	
49	53.8	2,574	1/49		17½	Carded	124	
60	44.4	14,880	650	Silk	2/70	Voile	115	
108	60.2	6,070	2/78		27½		58	
83	61.4	5,340	78	Thread	32		62	
58	42.5	4,000	46		40	B. I	121	
97	45.2	6,500	2/96	*3a*	70	*a* B	112	
77	45.2	6,500	2/96		49		117	
135	61.3	5,280	2/78		33		57	
97	62.5	6,280	78	Thread	32		60	
63	53.1	3,920	([2])		33		58	
53	33.4	2,020					110	
53	33.4	2,230	24	Woolen	24	Woolen	110	
69	29.4		20	Cotton	27	Wool	110	
48	33.4	2,230	50	do	50	do	110	
15	58.0		4/20	Hard twist	4/20	Hard twist	62	
53	49.2	3,230		Thread		Shoddy	49	
21	59.1	900-1,200					55	
51	52.7	2,508	20		110/55	(9148 and 9158)	49	
51	60.9	2,600	([3])	Wool	2/40	Cotton	70	
58	66.8	2,930	11	Thread		Carded wool	35	
46	92.4	3,825	12	Camel's hair	23 and 38	Camel's hair	30	
53		3,200					40	
60	62.9	3,750						
60	66.7	5,400		Lowen carded upper worsted.		Carded		
71	66.7	5,400		Worsted		Worsted		
41	80.7	3,800		Half wool		Half wool	44	
58	68.8	3,400		Worsted		Worsted		
60	66.7	3,800		do		Carded		
51	68.8	3,800		Carded		do		
64	62.9	5,600		Worsted and thread		Worsted		
132	70.8	6,500		Worsted		Carded		
68	66.9	7,200		do		do		
62	66.9	5,200		Worsted and carded		Worsted		
68	70.8	5,600		Worsted		Worsted and carded		
48	36.5	2,240					123	25
201	50.3	4,020	200/100	Silk	96/3	Silk	63	20
55	47.1	3,720	2/72	Thread	49		72	20
49	50.3	2,700	20	Cheviot	24	Cheviot	159	30
61	66.9	4,080	3/52	Thread	2/52		51	
56	68.4	7,680	2/52	Mixed thread	2/52	Worsted	52	
61	72.7	8,000	2/52		2/52		49	
61	66.9	4,080	2/52	Worsted	2/52	Worsted	49	
61	70.8	8,000	2/52	do	2/52	do	48-50	
36	62.9	2,200		Twisted yarn		Worsted wool	50	
53	66.9	3,900		Cotton	1/18	Cheviot	49	
188	45.2	2,700	49		86		118	20

[2] 32/37½.

[3] 8/2 m. m.

In several cases the cards returned were from weavers working on slow looms, usually girls or older women whose efficiency was not up to the standard. These weavers were paid a minimum wage for a week of 58 hours and a bonus based on the number of yards produced. All worked on single looms.

District.	Card number.	Loom.	Earnings.		Description of cloth.		Number of yards produced.
		Picks per minute.	Per yard.	Per hour.	Picks per inch.	Number of ends.	
Eschwege	187	60	$0.0168	$0.0447	41	....	154
Do	188	57	.0161	.0322	36	2,480	116
Do	189	62	.0236	.0472	43	3,020	116
Do	190	61	.0218	.0443	51	3,040	118
Do	191	60	.0200	.0472	36	2,480	137
Do	192	60	.0180	.0486	28	2,320	157
Do	193	60	.0193	.0439	29	2,300	132
Do	194	....	.0189	.0455	43	2,600	140
Do	195	58	.0168	.0368	....	2,760	127

The actual earnings of weavers at these piece rates would not be so divergent as the rates themselves, for the reasons, already stated, that the lower rates are for two-loom work and on fabrics that permit of large output.

On actual earnings for weavers a mass of data were secured which it has been impossible to tabulate or present from lack of time to prepare it. Some idea of earnings may be gleaned, however, from the following transcript of the weavers' pay roll for July, 1911, of an establishment producing the finer grades of cloth imported from Germany. The table shows the hours worked and total pay and rate of earnings per hour for each individual weaver in the plant. These weavers were all men. The average for all was 10.2 cents per hour. They worked 10 hours a day. The establishment has both one-loom and two-loom rates on the same cloths, has two-loom and one-loom work, and operates slow and fast looms, using all weavers indiscriminately upon all these types of work. A more significant pay roll could not have been selected in Germany.

TABLE 17.—*Hours, earnings per hour, and total earnings of weavers and foremen of weavers.*

Hours.	Earnings per hour.	Total earnings.	Hours.	Earnings per hour.	Total earnings.
WEAVERS.			WEAVERS—continued.		
260	$0.1005	$26.13	260	$0.0703	$18.28
260	.1083	28.16	225	.0825	18.57
260	.0878	22.84	260	.0953	24.77
230	.0590	13.57	280	.1142	31.97
230	.1238	28.48	260	.0939	24.41
235	.1157	27.18	260	.1116	29.01
225	.1212	27.27	250	.1876	46.91
260	.1131	29.41	260	.1000	26.01
260	.1081	28.11	250	.0839	20.98
260	.1149	29.88	260	.0705	18.34
235	.1199	28.19	260	.1028	26.73
260	.1222	31.77	260	.1340	34.85
260	.1093	28.42	260	.0972	25.27
260	.1275	33.15	260	.1064	27.67
260	.1139	29.61	260	.0954	24.80
260	.1121	29.14	260	.1021	26.54
260	.1229	31.95	220	.0918	20.19
225	.1067	24.00	30	.0952	2.86
260	.1145	29.78	260	.0983	25.55
260	.1084	28.20	130	.0976	12.69
260	.1205	31.33	260	.0932	24.22

TABLE 17.—*Hours, earnings per hour, and total earnings of weavers and foremen of weavers*—Continued.

Hours.	Earnings per hour.	Total earnings.	Hours.	Earnings. per hour.	Total earnings.
WEAVERS—continued.			WEAVERS—continued.		
260	$0.0975	$25.34	260	$0.0863	$22.43
195	.0947	18.46	260	.1203	31.27
260	.1100	28.60	260	.1112	28.92
260	.1155	30.02	260	.1004	26.10
260	.0872	22.67	260	.1129	29.35
140	.1107	15.49	260	.1225	31.84
260	.1129	29.36	240	.0893	21.43
260	.1186	30.84	260	.1143	29.73
260	.1242	32.30	250	.1190	29.76
260	.0880	22.89	260	.0858	22.30
260	.0912	23.72	260	.1049	27.27
280	.1206	33.78	250	.1107	27.68
260	.0984	25.59	260	.1031	26.80
320	.1195	38.25	135	.0954	12.88
100	.1319	13.19	260	.1078	28.04
195	.0859	16.76	160	.1127	18.03
260	.0939	24.43	260	.1175	30.55
260	.0923	24.00	120	.1077	12.92
260	.0863	22.43	240	.0917	22.01
220	.0983	21.63	260	.0947	24.62
260	.0916	23.81	100	.1105	11.05
250	.1021	25.52	70	.1286	9.00
260	.0881	22.91	260	.1046	27.20
260	.0950	24.70	260	.1383	35.95
255	.0770	19.64	260	.1230	31.98
260	.0699	18.17	260	.1050	27.30
260	.0748	19.46	260	.1199	31.19
240	.0799	19.17	260	.1238	32.18
260	.0561	14.58	60	.0950	5.70
140	.0913	12.79	260	.1273	33.09
215	.0470	10.12	260	.1097	28.52
260	.0802	20.84	240	.0786	18.86
260	.0753	19.59	260	.0941	24.46
260	.0592	15.40	260	.0868	22.56
260	.1008	26.22	260	.1302	33.85
260	.1043	27.11			
255	.1001	25.54	FOREMEN OF WEAVING.		
260	.1187	30.85			
255	.1103	28.12	260	.1602	41.65
260	.0721	18.75	260	.1007	26.18
260	.0993	25.81	260	.1098	28.56
260	.0848	22.04	260	.0952	24.75
260	.1015	26.38	260	.0952	24.75
260	.0943	24.51	260	.0952	24.75
260	.1167	30.35	260	.0952	24.75

Supplementary to the above transcript of a monthly pay roll from a single firm, there is presented below in Table 18 a condensation of the wage books of 93 male weavers and 62 female weavers in Luckenwalde, Germany, once the center for men's black broadcloths, but now making mostly heavy overcoatings, the women weavers still operating looms on men's broadcloth or clay worsteds. These pass books were for the months of April, May, and June, 1911, and gave the total hours worked and wages received each week; these have been condensed and an average earning per hour derived. The total hours worked in the three months have been preserved as indicative of the steadiness of the employee; the age of the operative in each case was preserved. The selection was made solely on the basis of such employees in the town as had preserved their pass books, regardless of the establishment in which they were employed or class of goods upon which they worked, except that they must be weavers of woolen or worsted cloth. Luckenwalde is a one-loom town, and practically all of the looms are of the slower type; that is, under 90 picks per minute, which in Germany usually means 75 to 80 pick looms. These 93 male and 62 female weavers may be reasonably accepted as typical of the industry in that locality.

TABLE 18.—*Wages for weavers in the woolen and worsted industry at Luckenwalde, Germany, during April, May, and June, 1911.*

Age.	Total hours worked.	Total wages.	Rate per hour.
MALE WEAVERS.			
50	668	$64.23	$0.096
37	724½	94.54	.127
43	776¾	74.64	.096
52	698¾	73.75	.106
27	776¾	78.41	.109
53	666¼	68.94	.103
28	684½	81.89	.105
40	680	88.46	.13
30	711½	76.83	.108
33	739	81.61	.11
59	733½	68.02	.092
56	776¾	62.45	.084
37	630½	72.67	.115
61	722½	88.83	.122
36	742	93.11	.125
42	776¾	73.43	.095
30	759	81.98	.108
26	722½	90.82	.114
29	665	60.29	.090
44	733	74.28	.102
29	776¾	93.91	.129
23	743	94.64	.127
52	750	68.83	.091
58	685	47.06	.069
43	776¾	72.61	.093
45	776¾	91.19	.118
52	776¾	80.28	.103
41	754½	90.95	.125
22	743½	94.00	.126
30	780¼	100.87	.132
52	738	63.28	.085
28	685	102.22	.149
51	741	73.05	.106
34	758½	79.66	.105
28	725	86.28	.119
25	739	68.24	.092
26	642	73.81	.115
69	710	56.19	.080
20[1]	776¾	68.06	.087
20[1]	780	63.51	.081
22[1]	60	5.00	.083
30	759	58.48	.077
37	720½	79.84	.111
27	776¾	62.36	.080
55	595½	46.84	.078
40	776¾	79.50	.102
33	755½	67.30	.089
24	757¾	77.84	.103
45	691½	62.06	.090
30	739¾	67.93	.092
54	776¾	50.08	.065
41	733½	76.19	.104
20	725¾	67.78	.093
43	776¾	52.48	.068
41	692½	63.15	.091
26	727¾	69.41	.095
43	757	74.18	.098
40	776¾	73.52	.095
23	751	81.34	.108
35	708	73.96	.104
26	776¾	58.09	.075
54	659½	53.55	.081
57	711½	57.88	.081
37	767	84.28	.110
36	717	64.84	.090
41	740	78.87	.107
35	721	71.24	.099
22	776¾	76.11	.098
29	685	69.05	.100
35	693½	79.95	.115
21	776¾	70.10	.090
49	776¾	54.38	.070
39	776¾	80.19	.103
32	756¾	71.63	.095
19	724¾	53.49	.074
30	635	65.70	.104
25	776¾	59.02	.076
45	776¾	66.48	.086
40	757	67.54	.089
MALE WEAVERS—continued.			
39	757	$75.89	$0.100
42	776¾	67.51	.087
39	758	79.00	.104
22	703½	56.66	.081
58	741	52.14	.070
29	776¾	68.31	.088
60	763¾	76.16	.100
39	755½	72.12	.095
42	769½	77.87	.101
52	736	64.12	.087
60	641	44.64	.070
32	752	71.41	.095
42	757	73.30	.097
53	686½	45.92	.067
FEMALE WEAVERS.			
18	683¾	53.54	.075
51	535⅒	41.89	.078
57	573½	46.31	.087
	645¾	49.06	.075
45	693½	65.38	.093
22	702	57.79	.082
27	532½	30.21	.057
40	751½	47.93	.064
25	657½	62.82	.095
23	657½	49.47	.075
41	651½	52.49	.085
22	776¾	38.85	.051
25	656½	48.16	.073
25	549	40.75	.075
21	663¾	50.38	.075
44	660½	49.39	.075
23	721½	48.15	.067
22	676½	57.25	.086
29	626	52.51	.083
36	620½	45.93	.072
61	664	50.30	.075
40	674½	57.32	.085
46	721½	57.17	.079
24	605	61.42	.115
19	683	63.73	.093
18	691	57.57	.083
21	721½	44.05	.061
21	655½	43.15	.066
22	698	45.30	.065
22	721½	43.10	.060
23	666	45.64	.069
23	647½	41.07	.063
24	721½	58.14	.081
24	486	28.33	.058
24	476	29.02	.061
25	647½	37.66	.058
26	518½	29.83	.058
28	457	29.37	.064
28	653½	39.67	.061
30	648	39.30	.061
31	607¾	39.46	.065
31	721½	41.60	.058
32	637	36.26	.057
32	624	44.04	.071
32	333	16.47	.049
33	555½	32.55	.059
37	699½	42.32	.060
39	586½	37.24	.064
39	693½	40.19	.058
42	591½	39.41	.067
43	700	48.65	.069
43	686½	37.72	.055
43	692½	43.15	.062
43	692½	45.86	.066
44	643	43.94	.068
46	673	44.31	.066
47	576½	34.88	.061
48	718¼	44.78	.062
49	706	46.24	.065
51	639	36.92	.058
55	721½	46.60	.064
57	684½	43.77	.064
	502½	35.42	.070

[1] Sample weaver.

Average hourly rate for male weavers, $0.0977. Average hourly rate for female weavers, $0.0694.

So far, then, as concerns the actual earnings of German weavers, aside from the rate per yard, it is very clear that the average for men is between 9 and 11 cents per hour of actual time worked. While it is not uncommon for a weaver to earn $1.25 or $1.30, and while earnings of $1.50 or even $1.75 are not unknown in rare individual cases, yet 95 cents to $1.10 is the usual earnings per day for German male weavers and 70 cents to 80 cents for women.

WOOLEN AND WORSTED WEAVERS' WAGE SCALES IN FRANCE.

Of the French weaving data secured by the board, so much as could be made available in the limited time is here presented.

TABLE 19.—*Woolen and worsted weavers' rates on specified women's dress goods, Beauvois-Fontaine, France, under the two-loom system.*

Cloth.	Width.	Total warp ends.	Picks per inch.	Warp beams.	Weavers' rate—		Weavers' daily earnings.
					Per 1,000 picks.	Per yard.	
1. "Sateen weave" of carded woolen yarn, undyed	45	3,600	45	1	*Centimes.* 4.8	$0.0150	$0.9264
2. Carded woolen "prunelle," undyed.	53	2,760	50	1	5.0	.0174	.8685
3. Woolen broadcloth	61	3,800	56	1	6.0	.0233	.9264
4. "Sateen weave" of carded woolen yarn, undyed	48	3,850	45	1	5.0	.0156	.8878
5. Plain weave "taffetas" with silk warp and botany weft, undyed	43	3,860	57	1	4.5	.0178	.7817
6. Armure weave of 2-ply carded woolen yarn, dyed	60	6,310	112	1	8.5	.0661	.9843
7. Striped light cashmere	65	5,475	72	1	6.5	.0325	.7527
8. Light cashmere, undyed yarn	44	4,260	82	1	3.0	.0171	.7759
9. Light-striped cashmere, dyed yarn	45	3,660	69	2	4.0	.0192	.9418
10. Light black and white checkered cashmere	48	4,060	76	1	5.0	.0264	.6755
11. Light striped cashmere, black and white yarn	49	4,500	79	1	4.0	.0220	.7720
12. Light white cashmere	50	4,260	70	1	4.0	.0195	.7720
13. Light striped black and white cashmere with "vigoureux" yarn [1]	65	4,174	52	2	6.5	.0235	.6273
14. Light gray and white cashmere containing 2-ply mercerized cotton	47	3,160	61	2	5.5	.0233	.8955
15. Light striped woolen goods of 2 colors	43	4,030	68	1	5.5	.0260	.7431
16. Light striped cashmere, black and white	65	5,475	69	2	6.5	.0312	.7527

[1] A twisted yarn of 2 threads, one cotton and one woolen, of different colors.

A scale of prices which commission weavers charge manufacturers was secured, together with the percentage of that rate which these middle men pay the actual weaver. That is to say, there are a number of persons in France who own or rent a few looms; they take the yarn from merchants or manufacturers and return to them the cloth woven in the raw. Since there are public finishing and dyeing establishments, this raw weave can be turned over to them for finishing. It thus happens that many so-called manufacturers of cloths own no machinery at all; they buy yarn as merchants, deliver it to commission weavers, then deliver the raw weave to finishing establishments, and receive back the finished fabrics, which they sell. The process may even begin with the raw wool in the grease, as there are public scouring establishments and job spinning mills.

The following scale, Table 20, then, is primarily a jobbers' scale. The rate per yard charged by the jobber is given on cloth of given picks, and to this is added a column showing the amount per yard paid the actual weaver. The rates are based on a one-loom system of work and are only a shade below the rates paid for such work in regular cloth-manufacturing establishments.

TABLE 20.—*Scale established between the association of contract weavers of cloths and the textile trade union of Lavelanet, Ariege, and environs, France (one-loom system).*

Commission or contract rate.				Rate paid to actual weavers.
Picks per centimeter.	Picks per inch.	Rate per "rang" (2.66 meters) in centimes.	Rate per yard (in cents).	
8	20.32	70	4.644	1.8576
9	22.84	75	4.976	1.9904
10	25.40	80	5.308	2.1232
11	27.92	85	5.639	2.2556
12	30.48	90	5.971	2.3884
13	33.00	95	5.303	2.1212
14	35.66	100	6.635	2.6540
15	38.08	108	7.165	2.8660
16	40.64	115	7.630	3.0520
17	43.16	123	8.161	3.2644
18	45.72	130	8.625	3.4500
19	48.24	138	9.156	3.6624
20	50.80	145	9.620	3.8480

1. Above 20 picks per centimeter (50.8 picks per inch) the rate is 5 centimes (0.965 cent) additional per pick per "rang;" that is, 0.3317 cent additional per pick per yard.

2. Striped or checked goods woven with 2 shuttles "odd" or "even," or with 3 shuttles "even," up to 16 harnesses are subject to the above scale.

3. For goods woven with 3 shuttles "odd" and 4 shuttles "even" the rate is 5 centimes per "rang," or 0.3317 cent per yard, extra.

4. Goods with 4 shuttles "odd," 10 centimes per "rang," or 0.6634 cent per yard, extra.

5. Goods woven with 16 to 19 shafts, 5 centimes per "rang," or 0.3317 cent per yard, extra.

6. Goods woven with 20 to 24 shafts, 15 centimes per "rang," or 0.9951 cent per yard, extra.

For woolen trouserings, pattern woven, and for trouserings of cotton warp and carded woolen filling, the rate per "rang" of the fabric is 5 centimes per pick per centimeter, as follows:

Commission or contract rate.				Rate paid to actual weavers.
Picks per centimeter.	Picks per inch.	Rate per "rang" (2.66 meters) (in centimes).	Rate per yard (in cents).	
8	20.32	40	2.654	1.0616
9	22.84	45	2.986	1.1944
10	25.40	50	3.317	1.3268
11	27.92	55	3.649	1.4596
12	30.48	60	3.981	1.5924
13	33.00	65	4.313	1.7252
14	35.56	70	4.644	1.8576
15	38.08	75	4.976	1.9904
16	40.64	80	5.308	2.1232
17	43.16	85	5.639	2.2556
18	45.72	90	5.971	2.3884
19	48.24	95	6.303	2.5212
20	50.80	100	6.635	2.6540
21	53.32	105	6.966	2.7864
22	55.88	110	7.298	2.9192
23	58.40	115	7.630	3.0520
24	60.96	120	7.962	3.1848
25	63.48	125	8.293	3.3172
26	66.04	130	8.625	3.4500
27	68.56	135	8.957	3.5828
28	71.12	140	9.288	3.7152
29	73.64	145	9.620	3.8480
30	76.20	150	9.952	3.9808

1. When these goods contain imitation silk threads, the rate is 10 centimes (1.93 cents) higher per "rang," or 0.64 cent per yard. For two-faced goods and goods woven of exceptionally delicate or easily breakable yarns the same extra rate is paid.

2. Fabrics that occasion very frequent stops of the loom shall be paid for at a daily rate of 3.50 francs (67.55 cents).

3. Operatives, who for lack of material are obliged to wait more than one day, shall receive an indemnity of 3 francs (57.9 cents) per day.

4. All pieces of goods that do not exceed 10 "rangs" (26.6 meters, or 29 yards) shall be subject to the scale for sample weaving.

5. Tying-in shall be paid for by the owner of the looms at the rate of 30 centimes (5.79 cents) per 1,000 ends.

Drawing-in (reeding): Up to 12 shafts, 15 centimes (2.895 cents) per 100 ends, including reed; 13 to 24 shafts, 17½ centimes (3.375 cents, per 100 ends, including reed.

Drawing in of a single reed, 1 franc (19.3 cents).

These drawing-in rates shall be paid to the operatives.

The same scale applies to samples as for full pieces, with an additional 20 centimes (3.86 cents) per "rang."

Tying-in for samples, 50 centimes (9.65 cents) per 1,000 ends, payable to the operative.

The method of arriving at the weavers' rate on a given fabric in France is somewhat like that followed in the United States, except that the picks per quarter inch is used in France instead of picks per inch as with us.

The system of paying by the 1,000 picks prevails in some districts, and the plan is gaining in popularity.

The following Tourcoing scale is, however, on the quarter-inch pick basis.

In the United States, wherever the "mills per pick per inch per yard" system is in vogue, the yardage rate would be ascertained as follows:

If the rate is 1.5 mills per pick inch and the yardage rate on a cloth woven 60 picks to the inch is required, multiply the rate in mills by the picks in an inch and the result is the rate per yard on the loom.

If an establishment has a 1.5-mill rate, a 60-pick cloth would pay 9 cents a yard. In France the rate is in centimes per pick per quarter of a French inch, and the result is the weavers' rate per meter on the loom. The French inch is somewhat longer than our inch—i. e., our inch is 2.54 centimeters in the metric system; the French inch is 2.77.

The following scale, then, is to be read in this manner: Take any men's worsted cloth that comes under the first category, multiply the number of picks in a quarter of a French inch by 0.75 centime, and the result is the price paid the weaver per meter of woven cloth:

WEAVING RATES OF ESTABLISHMENT B (TOURCOING, FRANCE).

[Picks per quarter-inch rates.]

(French inch.)

I. *Two-loom system (80 to 100 picks per minute).*—Men's goods, worsted filling, undyed, 0.75 centime; men's goods, pattern woven, with 2-ply No. 11 carded woolen yarn, dyed, 0.80 centime; women's dress goods, cashmere (2 by 2) weave, 0.70 centime; small patterned weave (armure) of fancy warp-rib character, 0.75 centime; "Prunelle" (2 by 1 twill) with carded woolen filling, 0.75 centime; goods of mixed worsted filling, 0.77 centime (the above rates apply when 6 shafts are used; when 12 are used the rate is increased 0.02 centime, except for No. 2); men's wear with No. 10 carded woolen filling and not over 12 shafts, 0.83 centime; men's wear with No. 12 carded woolen filling, 0.77 centime.

II. *Two-loom system (over 100 picks per minute, usually 116 to 120).*—Men's goods, worsted filling, natural yarn, 0.67 centime; men's goods, pattern woven, with 2-ply No. 11 carded woolen yarn, dyed, 0.80 centime; women's dress goods, cashmere (2 by 2) weave, 0.62 centime; small patterned weave (armure) of fancy warp-rib character, 0.67 centime; "Prunelle" (2 by 1 twill), with carded woolen filling, 0.67 centime; goods of mixed worsted filling, 0.69 centime (the above rates apply when 6 shafts are used; when 12 are used the rate is increased 0.02 centime, except for No. 21); men's wear with No. 10 carded woolen filling and not over 12 shafts, 0.83 centime; men's wear with No. 12 carded woolen filling, 0.69 centime.

III. *Goods woven on one Nuyt loom (up to 32 shafts).*—Cashmere weave, undyed yarn, 1 centime; small patterned weave (armure) of fancy warp rib character, 1.25 centimes; goods of No. 8 carded woolen yarn, 1.25 centimes; goods of No. 7 carded woolen yarn, 1.30 centimes; goods of No. 6 carded woolen yarn, 1.35 centimes; goods of No. 5 carded woolen yarn, 1.40 centimes.

IV. *Goods woven with mixed yarns.*[1]—Cashmere weave, undyed yarns, 1.25 centimes; "armure" weave (small patterned weave of fancy warp-rib character), 1.35 centimes; goods of carded wool No. 8, 1.45 centimes; goods of carded wool No. 7, 1.55 centimes; goods of carded wool No. 5, 1.62 centimes; goods of carded wool No. 4, 1.66 centimes; goods of carded wool No. 3, 1.70 centimes; "Pick and Pick" men's goods, 1.45 centimes; "Pick and Pick" dress goods, 1.35 centimes.

V. *Goods woven on one small English loom.*—Cashmere weave, undyed yarn, 1 centime; "armure" (small patterned weave of fancy warp-rib character), 1.20 centimes; goods of mixed yarns,[1] 1.20 centimes; goods of carded wool No. 8 (12 shafts), 1.45 centimes; goods of carded wool No. 7 (12 shafts), 1.55 centimes; goods of carded wool No. 5 (12 shafts), 1.62 centimes; goods of carded wool No. 4 (12 shafts), 1.66 centimes; goods of carded wool No. 3 (12 shafts), 1.70 centimes; "Pick and Pick" men's goods, 1.40 centimes; "Pick and Pick" dress goods, 1.35 centimes.

VI. *For men's and women's goods on large looms.*—Men's goods woven with 4, 5, and 6 shafts, 0.67 centime; goods woven of mixed yarns, 0.69 centime; goods of 2-ply No. 11 worsted filling, 0.80 centime; goods of carded woolen yarn No. 10, 0.83 centime; dress goods woven with 4 shafts and mixed yarns, 0.64 centime; dress goods woven with 4 shafts and undyed yarn, 0.62 centime; linings, (satin de Chine), 55 inches wide, 0.53 centime; linings (satin de Chine), 51 inches wide, 0.50 centime.

VII. *For dress goods on small looms.*—Diagonal weave dress goods, 4 shafts, 3-ply mixed yarns, 0.52 centime; "Armure" weave (small-patterned weave of fancy warp-rib character), 4 shafts, 3-ply yarn, 0.60 centime; diagonal weave dress goods, 4 shafts, 3-ply undyed yarn, 0.50 centime; "Armure" weave, 4 shafts, 3-ply undyed yarn, 0.58 centime; "Prunelle" (2x1 twill), with No. 18 yarn, 0.51 centime; "Prunelle" (2x1 twill), with No. 15 yarn, 0.53 centime; "Prunelle" (2 by 1 twill), with No. 12 yarn, 0.53 centime; "sateen" weave of No. 18 yarn, 0.66 centime; "sateen" weave of No. 15 yarn, 0.68 centime; "sateen" weave of No. 12 yarn, 0.70 centime.

VIII. *Extra allowances.*—1. For more than one shuttle, 1 centime extra per meter for the second, and an additional one-half centime for each further shuttle. 2. For each extra warp beam, one-half centime extra. 3. For goods woven with 13 to 20 shafts, one-half centime extra, and for goods woven with 20 shafts or more, 1 centime extra. 4. For goods having 6,000 to 8,000 warp ends, one-half centime extra per meter, and for goods having over 8,000 ends, 1 centime extra. 5. Sample pieces shall be paid for at the rate of 40 centimes per hour, or 4 francs ($0.772) per day.

AUSTRIAN WEAVERS' WAGE SCALES.

The weavers' wage scales of a number of Austrian woolen and worsted mills were obtained, and are condensed in Table 21.

The unit of pay in Austrian mills is not so uniform as in most countries. Many establishments pay by the 1,000 picks, as do most German mills, but many, again, pay by the day or hour. In tabulating such scales concisely it has been necessary to show both systems on the same page, and depend upon the reader to carefully relate the unit of pay with the rate in each case, since time was not given to develop more satisfactory method of presentation:

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[1] Mixed yarns are spun in different colors or of different materials, or consist of different colored yarns of the same material twisted together.

TABLE 21.—*Rates of pay for different kinds of work done by weavers in Austrian establishments.*

Establishment No.	Kinds of work for which weavers are paid.	Time work.			Piecework.	
		Hours per week.	Unit of pay.	Rate per unit.	Unit of pay.	Rate per unit.
					Picks.	
2	Weaving woolens		Week.	$4.06		
	When waiting for materials		Hour	.061		
3	Weaving woolens		Week	4.06		
	Weaving samples		Hour	.071		
4	Weaving woolens, worsteds, doeskins		Week	4.26		
	Weaving samples		Hour	.071		
5	Weaving overcoatings, winter coat linings, vest cloths.		Week	4.47		
6	Weaving woolens		do	4.47		
7	Weaving military cloths, not shoddies		do	4.06		
8	Weaving woolens		do	4.06		
	Weaving samples		Hour	.071		
9	Weaving fine spun cloths		Week.	4.06		
10	Weaving woolen lodens				1,000	$0.018-$0.024
11	Weaving meltons cheviots, tricots, lodens				1,000	.02-.026
	When loom fixing		Hour	.053		
13	Weaving half-wool worsteds, cheviots, melton trouserings.				1,000	.023
	Weaving piece dyes and lodens				1,000	.023
	Weaving half-wool worsteds with backing				1,000	.024
	Weaving all-worsted plain piece dyes				1,000	.019
	Weaving on looms under 65 picks per minute				1,000	[5] .005
	When loom fixing		Hour	.053-.055		
	When waiting for materials		do	.053-.055		
14	When loom fixing		do	.053-.057		
15	Weaving meltons and cheviots				1,000	.022-.024
	Weaving samples		Hour	.053		
	When loom fixing		do	.053		
16	Weaving cheviots, meltons, lodens, coatings				1,000	.022-.026
	When loom fixing		Hour	.053		
17	Weaving samples		do	.057-.061		
	When loom fixing		do	.057-.061		
18	Weaving woolens				1,000	.02 -.023
19	Weaving atlas, eskimo, twills, cheviots				1,000	.018-.024
	Weaving on looms under 65 picks per minute				1,000	[5] .005
	When loom fixing		Hour	.053		
20	Weaving meltons, tricots, cheviots, velours				1,000	.02 -.022
	Weaving on 60-pick looms				1,000	[5] .002
	When loom fixing		Hour	.053		
21	Weaving meltons, lodens "Knoten"				1,000	.018-.03
	When loom fixing		Hour	.053		
22	Weaving summer and winter goods on narrow looms.				1,000	.021-.026
	Weaving summer and winter goods on broad looms.				1,000	.026-.03
	When loom fixing		Hour	.053		
23	Weaving woolens				1,000	.02 -.025
	When loom fixing		Hour	.053		
24	Weaving customs goods with worsted warp	58½			1,000	.021-.03
	Weaving fancy and plain goods with worsted and twist warps.	58½			1,000	.02 -.032
	Weaving goods with 1-ply woolen warp	58½			1,000	.031-.038
	Weaving samples	58½	Week.	4.13		
	For tieing-in, single beam work	58½			[1] 100	.008
	For tieing-in, double beam work	58½			[1] 100	.010
25	Weaving with up to 25 harness and 2/40 yarn	58½			1,000	.02 -.026
	Weaving on broad looms, according to warp	58½			1,000	.03 -.032
	Weaving samples	58½	Week.	3.65		
	Tieing-in, single beam work				[1] 100	.008
	Tieing-in, single beam work on samples				[1] 100	.010
	Tieing-in, double beam work				[1] 100	.012
	Tieing-in, double beam work on samples				[1] 100	.012
28	Weaving samples	[2] 60 [3] 63	Week.	2.44		
	When drawing in		Day	.162		
	When tieing in		do	.264		
30	Weaving with bad materials		do	.609		
31	When oiling up at noon hour		Hour	(4)		
32	Weaving in regular season	57	Week.	5.28		
	Weaving in slack season	57	do	4.87		
33	Weaving in regular season	57	do	5.28		
	Weaving in slack season, Nov. 1 to Apr. 30	57	do	4.87		
34	Weaving gray goods, one or many dyed cloth				1,000	.019-.023
35	Weaving gray goods				1,000	.019-.023

[1] Warp ends. [2] Time-work. [3] Piecework. [4] Double. [5] In addition to base rate per unit.

Table 21.—*Rates of pay for different kinds of work done by weavers in Austrian establishments*—Continued.

Establishment No.	Kinds of work for which weavers are paid.	Time work.			Piecework.	
		Hours per week.	Unit of pay.	Rate per unit.	Unit of pay.	Rate per unit.
					Picks.	
36	Weaving flannels, cheviots, woolens, lodens, uniforms.		Day...	$0.568		
38	Weaving plain and fancy goods with backing.				1,000	$0.018-.02
40	Males weaving on woolens and custom cloths.	53½	Week.	5.68		
	Males weaving on woolens first year after apprenticeship.	53½	...do..	4.70		
41	Females weaving on woolens on power looms.	55	...do..	3.25		
	When loom fixing	55	...do..	5.28		
	When waiting for materials	55	...do..	5.28		
43	When weaving tallith cloth on loom 75 inches wide.	63	...do..	3.25		
	When weaving tallith cloth on loom under 75 inches wide.	63	...do..	3.45		

Sixteen establishments paid for the weaving of their regular product upon the basis of 1,000 picks of filling yarn woven; 15 others paid for regular work on a time basis. For all classes of goods woven in the 16 establishments the rate per 1,000 picks did not fall below 1.8 cents nor did it rise above 3.8 cents, which rate was reached in only 1 establishment and was paid for weaving with 1-ply carded wool yarn. An average of the highest rates reported for the 16 establishments was 2.4 cents per 1,000 picks. It is very significant that the rates shown in Table 21 are not basic wage rates, or minimum rates, as they were in the reports for the German mills, from which as bases the rates paid to the weaver rise according to increases in the number of harnesses, or the number of ends, or of shuttles, etc. In fact, only three Austrian scales indicate an increase over these rates (establishments 13, 19, and 20), and even there the increase in the rate per 1,000 picks was to be paid only on less than 65 picks looms. The cloths on which these rates were paid were summer and winter wear; plain and fancy woolens and half-woolen worsteds, piece dyed and stock dyed; goods of plain and intricate weave; goods with a backing; and included lodens, meltons, cheviots, tricots, atlas, and eskimo cloths; trouserings, coatings, and up-to-date suitings; twills and velours.

In the 15 establishments paying weavers by day or by week, the lowest rate paid for weaving regular product was $3.25 per week, or 54 cents per day, and the highest rate $5.68 per week, or 95 cents per day, was paid in establishment No. 40 to weavers who had completed one year after having finished their apprenticeship. An average rate was $4.31 per week, or 72 cents per day. Included in the cloths woven at these rates were woolens and worsteds, overcoatings, doeskins, winter coat linings, vest cloths and fine-spun cloths, cheviots, lodens, uniforms, flannels, tallith cloth, and up-to-date suitings. All of the 8 establishments which reported rates for weaving samples paid for such work on a time basis, the lowest rate paid being equal to $2.46 per week of 60 hours, or 41 cents per day, and the highest rate paid being $4.26 per week, or 71 cents per day. Twelve establishments paid weavers on a time basis for loom fixing, 8 of them paying 5.3 cents per hour, and the other 4 paying 5.5, 5.7, 6.1, or 9.6 cents per hour, respectively, for such work.

One establishment paid 26.4 cents per day for tieing-in; another paid from 0.8 to 1 cent per 100 threads, and a third paid from 0.8 to 1.2 cents per 100 threads on single and double beams and on plain and fancy warps. For drawing-in 1 establishment paid 16.2 cents per day. Three establishments paid weavers from 5.3 to 9.6 cents per hour for waiting for materials, and 1 paid them 61 cents per day for weaving with badly running yarns.

WOOLEN AND WORSTED WEAVERS' WAGE SCALES IN BELGIUM.

Verviers and its immediately surrounding towns constitute one of the principal Belgian centers for the manufacture of woolens and worsteds. Formerly a carded woolen goods center, it has for several years taken up worsted goods until now the worsted mills employ more persons than does the carded woolen industry. Commission weaving is quite prevalent, and an organization of commission weavers has formulated a scale of rates to be charged for the weaving of the various kinds of goods they produce. These commission weavers own or rent a few looms and then do weaving for manufacturers who have not enough weaving capacity of their own. They are jobbing weavers who have no financial interest either in the stock material or in the finished product. As a result of this system a class of so-called manufacturers has arisen who do not own any mills or looms whatever, but simply buy yarn as raw material, turn it over to these jobbing weavers, and receive back this woven cloth, which they turn over to job dyeing and finishing establishments, receiving it again from them as finished cloth which they sell.

The commission weavers of the above-mentioned association pay their operatives, or the actual weavers at the looms, two-thirds of the price charged by them for the work.

Weavers throughout this region are paid per 1,000 picks; the prevailing wage scales of eight establishments in this region were obtained by the Tariff Board, together with the rates agreed upon by the organization of commission weavers as the minimum wage for weavers in the employ of any of its members. These scales indicate the rate paid per 1,000 picks for some simple variety of cloth produced in the mill. To this basic rate extra allowances are added for weaving more difficult fabrics. Thus, in most of the mills the basic rate applies to the weaving of undyed worsted yarns. For dyed yarn there is an extra rate of from 1 to 3 centimes (0.193 to 0.579 cents) per 1,000 picks. For woolen yarn there is often an extra rate of 2 or 3 centimes (0.386 to 0.579 cents) per 1,000 picks. It is customary to increase the basic rate for extra warp beams beyond the first; for extra shafts beyond the twelfth; for goods with an unusually small or unusually large number of picks per inch; for goods woven with extra shuttles above two; for an exceptionally large number of warp ends; for two or more colors in the warp; whenever there is mohair, cotton, or silk in the warp; for woolen warp face or woolen filling; for especially heavy goods; or for other complications that make the work of the weaver slower or more difficult. The general significance of the extra allowances, and the difference in the basic rates, is indicated in Table 22.

In this table the first line gives the basic rate per 1,000 picks in cents and decimals of a cent; as for instance, group A, which is the group of commission weavers, pay 2.316 cents per 1,000 picks to their employees for weaving the basic-rate cloth; the establishment F or group represented by that schedule pays 2.895 cents per 1,000 picks. Only one other establishment pays as low as the contract weavers. The other items in the tables, which are simply conditional additions to the basic rate, are believed to be self explanatory.

TABLE 22.—*Weaver's wages, per 1,000 picks, paid in worsted and woolen mills, at Verviers, Belgium.*

[In 9 establishments and groups of establishments.]

Wages, rates, and extra allowances.	Establishments or groups of establishments.								
	A.	B.	C.	D.	E.	F.	G.	H.	I.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Basic rates for worsteds	2.316	2.316	2.509	2.702	2.702	2.895	2.934	2.972	3.088
Extras—									
Goods with under 40 picks per inch			.193			.193	.386	.193	
Goods with 80 to 100 picks per inch	.193	.193		.386	.386	.193			.193
Goods with 101 to 110 picks per inch	.386	.386		.579	.386	.386			.193
Goods with 111 to 140 picks per inch	.386	.579		.772	.386	.579			.386
Goods with 141 to 180 picks per inch					.579	.772			.579
3 shuttles	.193	.193	.193	.386		.193			
4 shuttles	.386		.386	.386		.386	.193	.193	
5 shuttles	.579		.579	.772		.579	.386	.386	
6 shuttles	.772		.772			.772	.579	.579	.193
7 shuttles	.965		.965			.965	.772		.386
Each shuttle thrown by hand						.386	.965		
2 warp beams	.193	.193	.193	.193	.193	.193	.193	.193	.193
3 warp beams						.386	.386	.386	
Single-piece warps				.193		.193	.193	.193	
Half-piece warps		.579	.386			.386		.579	.579
Woolen filling	.386	.579	.193	.193					.579
Woolen back filling	.386	.579				.193	.193		.193
Woolen warp face	.579	.772		.193		.579			
Warps containing mohair, cotton, or schappe	.193	.193	.193	.193		.193	.193	.193	
Warps of woolen and worsted	.386		.193			.193			
Bad material			.579						
Yarn-dyed goods	.579		.193			.193			.579
Dyed worsteds with 111 to 140 picks per inch					.579				
Goods with 5,000 to 5,500 warp ends			.193				.193		
Goods with 5,501 to 6,000 warp ends			.386						
Goods with 6,001 to 6,500 warp ends			.579						
Goods with 6,501 to 7,000 warp ends			.772						
13 to 18 shafts	.193						.193		
19 to 24 shafts	.193	.193	.193	.386	.193	.386	.386	.193	
25 or 26 shafts	.386	.386	.386		.193	.386	.579	.193	
27 or 28 shafts	.386	.386	.386		.193	.579	.579	.193	.386
29 to 32 shafts	.579	.579	.579		.386	.579	.772	.386	.386
33 to 36 shafts	.772		.772			.772	.965	.386	.386
2 colors in warp			.579	.579			.386		
3 colors in warp				.772		.193	.386		
Undyed cheviots				.386			.386		
Undyed cheviots with woolen backing				.772					
Overcoating with 1-ply woolen filling			1.158	.772	.965				
Overcoating with 2-ply filling			.965						
"Beavers" having not over 60 picks per inch	.965			.965					
"Beavers" having 61 to 75 picks per inch				.772					
"Beavers" having over 76 picks per inch				.386					
"Sateen weave" worsteds	.386	.579		.386	.386	.386			
Dyed woolens with less than 50 picks per inch		.965							.965
Woolen fabrics not otherwise specified							.386		
Military cloth				.772					

TABLE 23.—*Weavers' rates of wages, per 1,000 picks, in the woolen and worsted industry of Verviers, Belgium.*

[In 8 establishments or groups of establishments.]

		1	2	3	4	5	6	7	8
	UNDYED WORSTEDS AND CHEVIOTS.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
1	"Sateen weaves" not over 12 shafts nor over 100 picks per inch, nor over 2 shuttles	2.702	2.895	2.895	2.702	3.088	2.509	3.088	2.895
2	Sateen weaves not over 12 shafts nor 100 picks per inch, nor 2 shuttles, with carded warp face	2.895	2.895	3.474	2.895	3.281	......	3.088	3.088
3	Plain weaves with not over 13 shafts nor over 90 picks per inch, nor over 2 shuttles	2.316	......	2.895	2.316	3.088	......	2.702	......
4	Plain weaves with not over 13 shafts nor over 2 shuttles, having 91 to 100 picks per inch	2.509	2.702	2.895	2.509	......	......	2.702	......
5	"Three by one" weaves with not over 26 shafts, nor more than 100 picks per inch, and not over 2 shuttles	2.702	3.088	3.088	2.702	......	2.895	2.702	......
6	"Three by one" weaves with not over 26 shafts, with 101 to 135 picks per inch, and not over 2 shuttles	2.702	2.895	3.088	2.702	......	......	......	3.088
7	"Three by one" weaves with not over 26 shafts, nor more than 100 picks per inch, not over 2 shuttles, and with woolen warp backing	3.088	3.088	3.281	3.281	......	......	......	3.281
8	"Two by one" weaves with not over 18 shafts, nor over 120 picks per inch, nor more than 2 shuttles	2.895	3.088	3.281	2.895	......	......	......	3.281
9	"Two by one" weaves with not over 18 shafts, nor over 120 picks per inch, nor more than 2 shuttles, with extra beam of woolen or cotton warp	3.088	......	3.281	3.088	......	......	......	3.281
10	"Two by one" weaves with not over 18 shafts, nor over 120 picks per inch, nor more than 2 shuttles, with 2 different kinds of warp on a single beam	3.281	......	3.281	3.281	......	......	......	......
11	"Sateen weaves" with woolen filling, and not over 80 picks per inch, nor over 2 shuttles	3.088	3.281	......	3.088	3.667	......	3.281	3.474
12	Worsteds or cheviots with not over 16 shafts, nor over 60 picks per inch, nor over 2 shuttles	2.316	......	2.896	2.316	......	......	2.895	......
13	Worsteds or cheviots with not over 16 shafts, with 61 to 70 picks per inch, and not over 2 shuttles	2.509	......	2.895	2.702	......	......	2.895	......
14	Worsteds or cheviots with not over 16 shafts, nor over 2 shuttles, and containing 71 to 80 picks per inch	2.702	2.895	2.895	2.702	......	......	2.895	......
15	Worsteds or cheviots with not over 16 shafts, nor over 2 shuttles, containing not over 60 picks per inch, with woolen warp face or back	2.895	3.281	3.821	3.088	......	2.702	3.088	3.281
16	Worsteds or cheviots with not over 16 shafts, containing not over 60 picks per inch, with 3 shuttles	3.088	3.474	3.474	3.281	......	......	3.281	3.474
17	Worsteds or cheviots with not over 16 shafts, containing not over 60 picks per inch, with 4 shuttles	3.281	3.667	3.667	3.281	......	......	3.474	3.667
18	Worsteds or cheviots with not over 16 shafts, with 5 shuttles, and not over 60 picks per inch	3.474	3.860	3.860	3.667	......	......	......	3.860
19	Worsteds or cheviots with not over 16 shafts nor over 60 picks per inch, with an extra warp beam.	2.509	2.895	2.895	2.702	......	2.702	......	3.088
	DYED WORSTEDS AND CHEVIOTS.								
20	Worsteds or cheviots with not over 16 shafts nor over 60 picks per inch, with 2 shuttles	2.895	3.088	3.088	3.088	3.667	......	......	......
21	Worsteds or cheviots with not over 16 shafts with 61 to 80 picks per inch, and 2 shuttles	3.088	3.281	3.474	3.281	3.667	......	......	......
22	Worsteds or cheviots with not over 16 shafts with not over 60 picks per inch, 2 shuttles, and with woolen weft face or backing	3.281	3.281	3.474	3.474	3.667	......	......	......
23	Worsteds or cheviots with not over 16 shafts nor over 60 picks per inch, with 3 shuttles	3.088	3.281	3.281	......	3.667	......	......	3.281
24	Worsteds or cheviots with not over 16 shafts nor over 60 picks per inch, with 4 shuttles	3.281	3.474	3.474	......	3.667	......	......	......
25	Worsteds or cheviots with not over 16 shafts nor over 60 picks per inch, with 5 shuttles	3.474	3.667	3.667	......	3.667	......	......	......
26	Worsteds or cheviots with not over 16 shafts nor over 80 picks per inch, and with 2 warp beams and 2 shuttles	3.281	3.474	3.667	......	3.667	......	......	......
27	Worsteds or cheviots with not over 60 shafts nor over 80 picks per inch, and with 2 warp beams and 5 shuttles	4.246	3.860	......	......	......	......	......	5.246

TABLE 23.—*Weavers' rates of wages, per 1,000 picks, in the woolen and worsted industry of Verviers, Belgium*—Continued.

		1	2	3	4	5	6	7	8
	DYED WOOLENS.								
		Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
28	With not over 16 shafts nor more than 50 picks per inch, nor over 2 shuttles	3.281	3.281	3.088	3.281	......	......	......	3.281
29	With not over 16 shafts nor more than 50 picks per inch, with 3 shuttles	3.474	3.474	3.281	3.281	......	3.474	......	3.281
30	With not over 16 shafts nor more than 50 picks per inch, with 4 shuttles	3.667	3.667	3.474	3.474	4.053	3.667	3.667	3.474
31	With not over 16 shafts nor more than 50 picks per inch, nor more than 2 shuttles, woven with all worsted filling	3.088	......	......	......	......	......	3.088	3.281
32	With not over 16 shafts nor more than 50 picks per inch, nor more than 2 shuttles, with twisted warp yarn	3.088	......	......	......	......	......	3.088	3.281
33	"Beavers" having not more than 50 picks per inch	3.281	3.667	......	......	4.053	......	......	......
34	"Beavers" having from 51 to 70 picks per inch	......	3.474	......	......	4.053	......	......	......
35	"Beavers" having from 71 to 90 picks per inch	......	3.231	......	......	4.053	......	......	......

In Table 22, column A applies not to a single establishment, as do the other letters, but to the group of establishments constituting the Union of Weavers on Commission (Union des Tisseurs a Facon). It will be noted that the basic rate in these nine establishments or groups of establishments ranges from 12 to 16 centimes (2.316 cents to 3.088 cents). It should be noted, however, that the basic rate is not necessarily the rate paid for precisely the same fabric, woven under precisely the same conditions; for in some of the mills the basic rate applies to a more complicated or more difficult weave than in others. In the establishments tabulated under A and B the basic rate applies to a plain weave, 13 harness, 2 shuttle fabric having less than 80 picks per inch. In establishment C it applies to the same fabric woven with any number of harness up to 18. In establishment D it applies to women's broadcloth (woven in the gray) with 3 shuttles and up to 24 harness. In establishment E it applies to substantially the same goods, woven with not more than 25 harness. In establishment F the basic rate is paid for fabrics woven with 18 harness and having not over 80 picks per inch. In establishment G the basic rate applies to goods having up to 6,000 warp ends, requiring up to 24 harness and 3 shuttles. In establishment H the basic rate goods are woven with 3 shuttles and 20 harness on fast looms. In establishment I it is difficult to tell, from the wage scale, what is the nature of the cloth to which the basic rate applies. A clue to the differences in the rate of remuneration for weaving substantially the same fabric is furnished by Table 23.

Although the rates differ somewhat from mill to mill, even for the same kind of cloth, the weavers employed in the mills paying the lower rates are often quite as well off in the matter of total earnings as those in the mills paying the higher rates. This is due to (1) the lower rates paid by mills having speedier looms; the slower looms at Verviers make 60 to 70 picks per minute, while the faster looms make 90 and over. (2) In some of the mills paying a higher rate there are longer and more frequent pauses because of lack of material or curtailment of the work day because of insufficient orders.

It should be noted that the 1-loom system now predominates in the Verviers region, to the practical exclusion of the 2-loom system, which at one time was quite extensively employed. The opposition of organized labor in the industry, culminating in the strike of 1906, appears to be largely responsible for the abandonment of the 2-loom system here. The rates indicated in the above tables apply uniformly to 1-loom work. In Ghent, however, another important textile center of Belgium, the 2-loom system is not uncommon for woolens and worsteds. The cheaper grades of these goods are made mainly at Ghent, and the rate of wages paid there is so low, compared with Verviers, that despite the 2-loom system the average earnings of the weaver are smaller than at Verviers, where they range from 4 to 6 francs ($0.772 to $1.158) per day of 10½ or 11 hours, or 30 francs ($5.79) per week.

A separate and distinct rate is generally allowed at Verviers—as elsewhere—for sample weaving. The rate paid for such work is usually a time rate, the rate being generally fixed at an amount that assures the weaver a weekly or daily earning of at least the average of efficient weavers working at piece rates. The wages of sample weavers are therefore exceptionally important, because they indicate what are regarded as the average earnings of the weaver. At Verviers several of the woolen and worsted mills employ a combination of time wages and piece wages for sample weavers. Several mills pay a rate of 4 francs ($0.772) in lieu of the basic rate, and add to this the same allowance for extras. The Weavers on Commission pay a flat rate of 4 francs ($0.772) per day for sample weaving. Another mill pays sample weavers a basic rate of 4 francs ($0.772) per day, plus 2 centimes (0.386 cent) per 1,000 picks for samples over 6 meters long; 3 centimes (0.579 cent) per 1,000 picks for samples 3 to 6 meters long; and 6 centimes (1.158 cents) per 1,000 picks for samples not over 3 meters long. In another mill the daily rate for sample weaving is 4 francs ($0.772), but when samples are dyed in the yarn with 20 shafts or more, the sample weaver is entitled to an additional rate of 2 centimes (0.386 cent) per 1,000 picks for the first sample.

The weaver usually ties his own warp ends, the rate for this work being, as a rule, 2 centimes (0.386 cent) per 100 ends. One establishment, however, pays 50 centimes (9.650 cents) for warps up to 4,000 ends, and 1 franc ($0.193) for warps of more than 4,000 ends.

WEAVERS' RATES IN FLEMISH MILLS.

In some of the Flemish weaving mills two rates are paid; one for wide looms and another for narrow looms that run somewhat faster. The usual speed of the wide looms is 90 to 95 picks per minute. That of the narrow looms is 115 to 120 picks per minute. The rates given in the above tables for these mills in Flanders are for wide looms. Two of these looms running 95 picks per minute would therefore make a theoretical maximum of 125,400 picks per day of 11 hours. But because of stops due to the inferior quality of the material, to the 2-loom system, and to other circumstances, the average weaver working on fabrics for which the rate is 7 centimes (1.35 cents) will not produce more than 60,000 picks per day, thus earning 4.20 francs ($0.8106). Although the speed of the narrow looms is about 30 per cent greater, the weaver's rate is 15 to 20 per cent less. Whereas the daily wages of the weaver at Verviers are between 4 and 6 francs ($0.772 and

$1.16), the average being around 5 francs ($0.965), the average daily wages of the Flemish weaver will not usually exceed 4 francs ($0.772).

A few of the mills for which wage scales were obtained provide for the payment of an indemnity to the weaver when the latter is forced to be idle because of lack of yarn. In two establishments it is specifically provided that "for waiting for yarn, the manufacturer shall pay 2.50 francs (48¼ cents) per day, after the first day of waiting." In the other wage scales no reference is made to the subject; but the practice appears to be common. On the other hand, in all of the mills there is a recognized list of the defects in weaving, for which the weaver must pay. As a rule, the weaver is charged the exact or the approximate cost of removing these defects. Even in the instances in which a specific fine is imposed for specific defects, the amount of the fine is so fixed as to approximate what it costs the manufacturer to mend these defects.

At Ghent, the textile center of Flanders, the 2-loom system is not uncommon; but the woolen and worsted fabrics woven here are as a rule of lower grade than those made at Verviers, and the looms run somewhat faster. Partly for these reasons the piece rate at Ghent is lower than at Verviers. Indeed, it is so much lower that the weekly earnings of the woolen and worsted weaver in Flanders will average approximately one-fourth less than in the Verviers region. Because of the 1-loom system and the relatively high wage rate at Verviers, the weaving of certain classes of goods there is no longer profitable, and the work is generally done either in certain German towns where the 2-loom system prevails, or the goods are woven in Flanders at a considerably lower cost than at Verviers. In both regions the weaving of woolens and worsteds is carried on at night during seasons of great demand. But night work in weaving is by no means so common as in scouring, combing, and spinning, for establishments engaged in these branches of the industry run as a rule both day and night. In both the Verviers region and in Flanders the majority of the weavers are men, although women are employed to some extent.

The board obtained the wage scales of woolen and worsted mills in Flanders. These scales, all of which are based on the 2-loom system, indicate rates varying from 5 centimes (0.965 cents) to 11 centimes (2.123 cents) per 1,000 picks for goods woven in undyed yarns. For dyed yarns the rate averages 3 centimes (0.579 cents) higher.

Typical cloths, for which partial loom analysis could be given, showing basic rates in three of these wage scales are presented below:

TABLE 24.—*Woolen and worsted weavers' wages of establishment A, in Flanders, Belgium.*

	Cloth.	Total warp ends.	Shuttles.	Picks per inch.	Beams.	Shafts.	Wages.	
							Per 1,000 picks.	Per yard of cloth.
							Cents.	*Cents.*
1	Plain worsted	8,527	3	70	2	18	1.54	3.88
2	.....do	5,868	3	110	1	13	1.25	4.95
3	Plain worsted with woolen filling	5.868	2	110	1	13	1.23	4.87
4	Coarse worsteds	3,340	2	46	1	15	1.16	1.92
5	Ordinary worsteds, yarn dyed	3,340	2	56	1	24	1.35	2.72
6	Worsted with woolen filling	4,800	2	110	1	10	1.25	4.95

TABLE 25.—*Woolen and worsted weavers' wages of establishment B, in Flanders, Belgium.*

	Cloth.	Total warp ends.	Shuttles.	Picks per inch.	Shafts.	Wages.	
						Per 1,000 picks.	Per yard of cloth.
						Cents.	*Cents.*
1	Worsted cheviots	2,600	1	40	6	1.18	1.70
2	.....do	2,950	1	45	6-8	1.35	2.09
3	.....do	3,450	1	50	8	1.35	2.43
4	Worsted cheviots with woolen filling	2,950	1	80	6	1.19	3.33
5	Fancy worsteds with woolen filling	3,450	1	60	6-8	1.35	2.92
6	.....do	3,450	1	54	6	1.39	2.70
7	Worsteds containing cotton	3,450	1	54	6	1.23	2.39

TABLE 26.—*Woolen and worsted weavers' wages of establishment C, in Flanders, Belgium.*

	Cloth.	Warp ends.	Shuttles.	Picks per inch.	Shafts.	Wages.	
						Per 1,000 picks.	Per yard of cloth.
						Cents.	*Cents.*
1	Plain worsteds	3,000	2	48	4	1.16	2.00
2	.....do	3,000	2	48	18	1.45	2.51
3	Plain woolens	3,600	1	58	6	.965	2.01
4	.....do	3,600	1	92	6	.965	3.10
5	.....do	4,750	1	56	10	1.16	2.34
6	.....do	4,750	2	53	14	1.48	2.82

SPEED OF LOOMS IN ENGLAND, GERMANY, FRANCE, AND BELGIUM.

No subject is more difficult of approach than that of the theoretical speed of looms in use over any very wide area. Individual mills have new and speedy looms running under the same roof with old and slow ones, 48-pick looms being found with 110-pick looms. If this is true in single mills, it is much more true when a country is under discussion. Under the conditions found, about all that can be done is to give such a general view as is possible.

There is no doubt that in England the looms of from 70 to 80 picks per minute of possible efficiency, or what is known as "speed of the loom," are rapidly being displaced, and that high-speed tappet and dobby looms of from 130 to as high as 155 picks per minute are coming more and more into vogue. Of course the actual percentage of production, as based upon the possible production if measured by the highest indicated speed, will decrease as the speed of the loom goes up; nevertheless the actual output in yards of cloth increases, and increases materially. Especially is this true with that class of fabrics such as worsteds and cotton warps to which these looms are particularly adapted. In other words, cloths made of strong yarns that will stand high-speed looms with a minimum of breakage can be put upon these looms to an ever-increasing advantage.

In the case of carded woolen goods there is no advantage in looms of more than 90 picks per minute under the present method of weaving, as the faster looms break the threads more frequently and the actual output in yards per loom or per operative is not materially increased. In Germany the highest speed of loom which came under observation was 130 picks, except at Mülhausen, where a few 160-pick looms were reported, and only in the Gera, Greiz, Glauchau and Meerane districts do looms of 120 picks per minute enter seriously into consideration. These are the districts for the lighter-weight goods and for women's dress goods. While all the looms in this section are not by any means 120-pick looms, yet above 90 picks would be the rule, and 100, 110, and 120 pick looms are now practically the standard of this region. In the districts making men's wear, overcoatings, etc., there is found the greatest divergence, as for instance between the Cottbus-Forst region and Aachen. In Cottbus the average speed of the looms in 46 establishments was 76 picks per minute, and the looms in 22 establishments in Forst shows the same average speed. At Spermberg in 19 establishments the average speed of the looms was 74 picks per minute, while at Sommerfeld in 7 establishments the speed averages 57. At Aachen the weaver's rate is based on looms from 90 to 100 picks, and while there are many 70 to 80 pick looms, a higher rate is paid for such, showing the standard to be 90 picks and over. A number of "pick and pick" looms making 125 picks to the minute have been introduced into this section, and their number is increasing rapidly.

It must be remembered that many of the apparently low-speed looms are of the Schönherr type, capable of weaving almost any kind of high-grade fabric, and that, after all, a 100-pick Schönherr loom is a very effective machine and probably for all-around cloth manufacture is as effective as any loom. Special looms for special weaves can not of course be considered here.

In France outside of the Roubaix district, and to an increasing degree in Roubaix, the type and speed of looms are following what was seen to be true in England; that is, high-speed looms are rapidly displacing the older and slower ones.

Outside of Verviers this is also essentially true of Belgium.

The 1-loom and 2-loom districts have been frequently referred to, especially in that part of the report showing cost on sample fabrics. This 1-loom district problem is twofold in its nature. In the first place there are some fabrics upon which a weaver can operate only one loom, and could not attend another even if running on it an easier kind of cloth. As the manufacture of certain lines of goods tends to centralize in localities this generally produces the 1-loom district without other influences. By far the most potent force in this direction, however, is the trade union and the trade custom or heredity which makes the weaver, whether union or nonunion, opposed to a change of method or system. The trade unions of the Gera district, for instance, do not oppose the 2-loom system on women's dress goods; the same organization opposes the introduction of 2-loom work in Cottbus, Forst, Spermberg, and Aachen, and this in turn operates to make these districts produce principally, if not exclusively, men's wear and the heavy goods—goods that are in their nature 1-loom work. That the union is an influence is shown by the fact that in small towns near Aachen, but where the union influence is not felt, the 1 and 2 loom weaving rates and methods of production are found in the same mill and apply to the same fabric, just as is true in the United States.

In Roubaix, France, and in Verviers, Belgium, the 1-loom system is held by trade organizations, and in the latter place a prolonged strike against 2-loom work induced the employers to stop the attempt to introduce the method, at least for the time being. This might seem to be a local issue, but it has this significance, that should the 1-loom districts become 2-loom districts the weaving rate per yard of cloth would be materially reduced on such fabrics as can be woven on two looms or when another loom on a different fabric could be operated jointly with one on this fabric; and, moreover, many classes of goods now confined to a few districts could be economically manufactured in many.

SPINNING WAGE SCALES AND COSTS IN GERMANY, ENGLAND, AND BELGIUM.

WORSTED YARN SPINNING, GERMANY.

A large amount of material was collected on yarn spinning in the form of wage scales in force in individual mills or groups of mills. These wage scales, however, go into such a maze of detail that to print simple translations of them would do more to confuse than to enlighten.

It has been deemed more satisfactory to present the matter in a more concrete form, and show what a mule spinning crew will do in a given time, and the cost of labor per 100 pounds of yarn.

To begin with, a normal crew in practically all parts of Germany consists of one mule spinner who operates two mules; he has four piecers and two alley boys, or a crew of seven persons. When for any reason a spinner works with three piecers (to two mules) he receives 8 per cent extra, and each piecer receives 7 per cent more; when there are but two piecers the spinner gets 20 per cent more and the piecers 15 per cent more on the rate, not on the standard pay of the week. Four piecers to a team, however, is the rule, and only the absence of a piecer now and then from sickness or shortage of help reduces the number.

The international or metric system of yarn counts is used; that is, the number of the yarn is the multiple of 1,000 meters required to weigh a kilo. No. 20 yarns means that 20,000 meters of such yarn weighs 1 kilo. All of these yarn counts have been given the nearest American equivalent.

Theoretically, a team is expected to produce 33,000,000 meters of yarn in a week of 58 hours; the number and weight of the yarn would, of course, depend on the size to which it is spun.

Just as the standard output is 33,000,000 meters, the standard earnings or wages of a good mule spinner is set at 26 marks ($6.19) in a week of 58 hours. The four piecers each receive 63 per cent of the spinner's wages, or 16.38 marks ($3.90), making 65.52 marks, or $15.60, for piecers' wages. The spool or alley boys get 9 marks ($2.14) each, or 18 marks ($4.28) for the week, making a total wage or earnings for the team of 109.52 marks ($26.07) in a week of 58 hours. This is the actual standard in the mill from which the figures given on page 776 were secured.

This table represents the facts in an establishment having 74 mules, 48,100 spindles, employing 37 spinners, 148 piecers on, and a total of 650 employees. It is based on the output of one spinner operating two mules or 1,300 spindles, and shows, first, the international count or yarn number; second, the American yarn number; the number of of pounds of yarn of the indicated size that would be produced in a week of 58 hours; the earnings of the team (of seven persons) per 100 pounds of product; and, lastly, the earnings or rate for the spinner alone per 100 pounds of yarn on each size. The table is carried up to No. 69 yarn.

To make it clearer, take the yarn No. 45 in the first column, which is the international or metric count 45; this equals our worsted yarn No. 40, and a team of seven persons (one spinner, four piecers, and two alley boys) operating two mules of 650 spindles each, or 1,300 spindles, will produce in the establishment under consideration 1,613.7 pounds of 40s yarn (36,036,360 yards) in a week of 58 hours, for which the team would receive $1.6152 per 100 pounds; the spinner $0.3834 per 100 pounds; the spinner earning $6.19 for his week's work, each piecer $3.90, each alley boy $2.14, and the entire group or team $26.07. In other words, the wages of the spinner and team remaining permanent at the standard, the table shows how much of each sized yarn must be produced in a week to reach the earnings, at the rate per 100 pounds for each sized yarn.

International yarn number.	American equivalent in nearest whole number.	Pounds produced per week.	Wages of team per 100 pounds.	Wages of spinner per 100 pounds.
16	14	4,585.61	$0.5684	$0.1349
17	15	4,246.10	.6139	.1457
18	16	3,968.32	.6568	.1564
19	17	3,754.47	.6943	.1648
20	18	3.697.15	.7050	.1674
21	19	3,580.30	.7280	.1728
22	19	3,481.10	.7488	.1778
23	20	3.373.07	.7728	.1835
24	21	3,262.84	.7989	.1897
25	22	3,097.49	.8415	.1998
26	23	2,938.76	.8870	.2106
27	24	2,795.46	.9324	.2214
28	25	2,665.39	.9779	.2322
29	26	2,601.45	1.0020	.2379
30	27	2,546.34	1.0237	.2430
31	27	2.438.31	1.0690	.2537
32	28	2,339.10	1.1143	.2645
33	29	2,336.90	1.1154	.2647
34	30	2.204.62	1.1182	.2807
35	31	2.162.73	1.2052	.2861
36	32	2,138.48	1.2189	.2894
37	33	2,010.62	1.2964	.3078
38	34	1,948.89	1.3375	.3175
39	35	1,847.47	1.4109	.3349
40	35	1,818.81	1.4331	.3402
41	36	1,790.15	1.4561	.3456
42	37	1,737.24	1.5004	.3562
43	38	1,684.33	1.5475	.3674
44	39	1,635.83	1,5934	.3783
45	40	1,613.78	1.6152	.3834
46	41	1,591.74	1.6376	.3888
47	41	1,569.69	$1.6606	$0.3942
48	42	1,547.64	1.6842	.3998
49	43	1,525.60	1.7086	.4056
50	44	1,468.28	1.7753	.4215
51	45	1,433.00	1.8190	.4318
52	46	1,388.91	1.8767	.4455
53	47	1,364.66	1.9101	.4535
54	48	1,331.59	1.9575	.4647
55	49	1,300.73	2.0039	.4757
56	50	1,272.07	2.0491	.4865
57	50	1,245.62	2.0926	.4968
58	51	1,219.16	2.1380	.5076
59	52	1,192.70	2.1854	.5188
60	53	1,168.45	2.2308	.5296
61	54	1,146.40	2.2737	.5398
62	55	1,122.15	2.3228	.5514
63	56	1,091.29	2.3885	.5670
64	57	1,069.24	2.4378	.5787
65	58	1,051.60	2.4787	.5884
66	58	1,031.76	2.5263	.5997
67	59	1,014.13	2.5703	.6102
68	60	996.49	2.6158	.6210
69	61	978.85	2.6629	.6321
70	62	963.42	2.7055	.6423
71	63	945.78	2.7560	.6543
72	64	930.35	2.8017	.6651
74	65	888.46	2.9338	.6965
75	66	868.62	3.0008	.7124
76	67	855.38	3.0473	.7234
78	69	824.53	3.1613	.7505

Below, in Table 27, is the spinners' scale for a worsted-yarn mill in Augsburg, Germany, employing 1,686 persons, having 110 mules, and employing 55 spinners and 220 piecers-on.

The scale is for the team or group price per pound. The quality of wool and the international or metric yarn count are given. The rate for warp and for weft yarn, on a different number of spindles carries a different rate, and this is brought out as clearly as a tabulation of a wage scale can bring it out. When two rates appear, it is for a slightly different number of twists in the yarn per inch, an element that could not be tabulated. For instance, take No. 78 weft yarn on 500 spindles, the rates are 3.3 and 3.4 cents per pound for the team; while with 680 spindles the rate is 3.2 cents per pound.

TABLE 27.—*Wages of mule spinners in a German worsted-yarn mill.*

Number of spindles.	Kind of yarn.	Quality of wool.	International yarn count.	Team wages per pound, in cents.	Number of spindles.	Kind of yarn.	Quality of wool.	International yarn count.	Team wages per pound, in cents.
500	Weft....	A	52	1.9	600	Warp...	A	64	2.2
500	...do.....	A	64	2.5	600	...do.....	A	66	2.2
500	...do.....	A	68	2.7	600	...do.....	A	78	2.7-2.8
500	...do.....	A	68/9	2.7	640 or 680	...do.....	A	64	2.4
500	...do.....	A	69	2.8	640 or 680	...do.....	A	78	3.1
500	...do.....	A	72	3.0	640 or 680	...do.....	2 A	86	3.4
500	...do.....	A	73	3.0	640 or 680	...do.....	2 A	90	3.6-3.7
500	...do.....	A	74	3.1	640 or 680	...do.....	3 A	96	4.0-4.1
500	...do.....	A	78	3.3-3.4	640 or 680	...do.....	4 A	112	5.1
500	...do.....	A	79	3.3-3.4	680	Weft....	[1] BC	30	1.05
500	...do.....	2 A	84	3.5	680	...do.....	[1] BC	32	1.06
500	...do.....	2 A	86	3.7	680	...do.....	[1] BC	48	1.9
500	...do.....	2 A	92	4.1	680	...do.....	B	40	1.2
500	...do.....	3 A	96	4.3	680	...do.....	B	51	2.0
600	Warp...	A	32	1.0	680	...do.....	[1] AB	64	2.5
600	...do.....	A	42	1.5	680	...do.....	[1] AB	68	2.7
600	...do.....	A	46	1.6	680	...do.....	A	66	2.5
600	...do.....	A	49	1.8	680	...do.....	A	70	2.8
600	...do.....	A	52	1.9	680	...do.....	A	72	2.8
600	...do.....	A	53	2.0	680	...do.....	A	76	3.0
600	...do.....	A	54	2.0	680	...do.....	A	78	3.2
600	...do.....	A	56	2.1	680	...do.....	A	86	3.6
600	...do.....	[1] AB	16	.4	680	...do.....	3 A II	92	3.9
600	...do.....	A	26	.8	680	...do.....	3 A	96	4.1-4.4
600	...do.....	A	48	1.5-1.6	680	...do.....	4 A	112	5.5-5.7
600	...do.....	A	52	1.7	800	...do.....	A	74	2.8-3.2

[1] Twisted together.

The above wages will be paid only for spinning up the weft yarn; for warp yarn 0.43 cents is deducted on quality A, and 0.75 cents on qualities AA and AAA.

WAGES OF SPINNERS AND PIECERS IN GERMAN TOWNS.

Table 28 gives the standard rate of earnings for worsted spinners and piecers in various establishments and localities in Germany. The table shows the location of the establishment, the number of spinners, and standard weekly rate of earnings. It is fully realized that in both of these occupations the piece rate payment of wages prevails, and that a spinner earns what he produces at that rate, nevertheless the standard is fixed on an output that is more or less of a task system; and these are frequently protected by a guaranteed minimum that insures the worker against loss from any reason not his own fault.

The figures here given may be accepted therefore as representing the standard earnings of the occupations in the establishments.

Where the name of a town is given more than once it means different establishments in the same town:

TABLE 28.—*Rates of pay for spinners and piecers in specified German localities.*

Place.	Spinners.		Piecers.	
	Number.	Earnings per week.	Number.	Earnings per week.
Leipzig	46	$6.43	184	$3.09
Delmenhorft	33	5.71	132	3.93
Augsburg	55	6.07	220	3.69
Leipzig	7	6.31	28	3.33
Erstein	39	5.71	156	3.33
Lennep	29	5.47	116	3.81
Schedewitz	49	5.95	196	3.21
Leipzig	42	6.55	168	3.27
Mulhausen	34	7.50	136	5.02
Zwickau	27	6.07	108	3.57
Zwotzen	37	6.19	148	3.71
Butzweiler	9	6.66	36	4.46
Mulhausen	25	7.74	100	5.12
Eisensch	38	5.93	152	2.90
Schweina	17	5.24	68	3.57
Goszmannsdorf	21	6.66	84	2.98
Langenfalza	31	5.71	124	4.28
Ronneburg	7	5.12	28	2.50
Gautzsch	15	6.43	60	3.21
Dresden	5	6.66	20	2.86
Kappel	14	5.47	56	3.81
Langenfalza	7	....	28	3.86
Dornsfeld	2	....	8	2.38
Buhl	21	7.02	84	4.58
Mulhausen	31	7.38	124	4.94

EFFICIENCY OF LABOR; WAGES, AND LABOR COST BY PROCESSES, IN A GERMAN WORSTED SPINNING MILL.

A persistent effort was made to secure process efficiency and costs everywhere, and an opportunity was afforded in a German worsted spinning mill to secure minute and accurate data on each operation and process. The mill makes high-grade worsted yarns, such as enter into the class of goods imported into the United States and is thoroughly equipped with up-to-date machinery, buying its raw wool in the grease, carrying on all processes preliminary to and including spinning. It does its own wool, top, and yarn dyeing. In the following statement only direct labor is accounted for; this does not include either inspection or common roustabout labor.

Beginning with the sorting of the wool, which is, of course, a purely handwork process, the sorting room was found to employ 22 wool sorters, all women, and 2 rag sorters, both men. The men were paid $1.07 per day. The wool sorting is piecework and the women earn from 64 to 66.6 cents per day; the average output per day being 13,228 pounds of sorted wool for the 22 women, or an average of 601 pounds per sorter per day; the labor cost for actual sorting being 0.13 of a cent per pound. This does not include the inspectors, who are men, and who are comparatively well paid.

The sorted wool is conveyed in chutes to the scouring room, where three men and four women operate two machines. The average daily output of scoured wool is about 6,173 pounds, or 3,086 pounds per machine, and 882 pounds per worker. The average wages of the men operatives on these machines is 95.2 cents per day; and 50 cents for the women; the labor cost being 0.08 of a cent per pound of scoured wool.

From the scouring department the wool goes to the card room, where 27 persons are employed directly upon the carding process. Of these, four are men and 23 are women, all over 16 years of age. They are paid by the day, and the wages for the men average $1.07; women are paid from 52.4 cents to 54.7 cents per day. The output averages about 5,732 pounds per day; 159.2 pounds per machine, and 212 pounds per worker per day, the labor cost per pound of carded wool being 0.29 of a cent.

From the card room the material goes to the combing department, where 15 women tend 36 up-to-date combing machines and 4 gill boxes. The work here is on a time basis, and the daily rate ranges from 52.4 to 54.7 cents. The average daily output of tops is about 5,512 pounds, an average of 153 pounds per combing machine, or 367 pounds per worker; the labor cost per pound of tops, for comb operatives only, is 0.15 of a cent.

Drawing.—There are 115 women and 5 men in the drawing department converting tops into roving. The average daily production for the department is about 5,732 pounds, or 48 pounds per worker. Wages are paid on a piecework basis. There is 1 male over 17 years old whose earnings average 80.9 cents per day; 4 boys between 16 and 17 years old get a beginner's rate of 38.1 cents per day; and the women workers earn 54.7 to 59.5 cents per day. The average labor cost per pound of roving is 1.19 cents.

Mule spinning.—There are 18,600 spindles in the mule room, and a total of 119 workers, 53 of whom are males, and 66 females; 20 are under 16 years of age.

The daily output is about 1,984 pounds of yarn, which is 10.7 pounds per 100 spindles, and 17 pounds per worker, including children. The 15 spinners (on piece rates) have an average daily earning ranging from $1.05 to $1.09; 18 male piecers have an average earning ranging from 83 to 88 cents a day; female piecers 64 to 71 cents a day; the 20 boys receive an average of 38.1 cents per day. The labor cost per pound of yarn produced is 4.23 cents.

Ring spinning.—There are 16,800 spindles in the ring-spinning department. The total employees number 108, one of whom is a man; there are 101 females over 16, and 6 girls under 16 years of age.

The average output per day is about 3,527 pounds of yarn; 21 pounds per 100 spindles, or 33 pounds per worker, including children. Wages are paid on piecework basis; the 1 man earns 90.4 cents per day; the women average 59.5 cents, and the 6 girls are paid a beginner's rate of 38.1 cents per day.

The average labor cost per pound of yarn is 1.79 cents.

Doubling and twisting.—The 28 twisting frames in this department have 8,880 spindles; there are 9 doubling frames.

There are 112 employees, 3 of whom are men, 94 women, and 15 girls under 16 years of age.

The average output of the department is about 2,205 pounds per day, 79 pounds per twisting frame, or 25 pounds per 100 spindles; 245 pounds per doubling machine; and 20 pounds per worker, including children.

The average wage on piecework basis for men is $1, and 59.5 cents for women. The children were on a time wage of 38.1 cents per day. The average labor cost per pound of yarn is 2.91 cents.

Packing and steaming.—There are 23 employees in this department engaged directly on the processes of the work. Of these, 7 are men and 16 are women. The daily output is about 5,512 pounds, or 240 pounds per worker.

Wages are paid on an hourly rate basis and the men receive from 88.1 cents to 90.4 cents per day; the women 59.5 cents.

The average labor cost per pound of yarn passing through this department is 0.29 of a cent.

Dyeing.—As before stated, this firm does its own dyeing, whether of tops before spinning into yarn, or of yarn after it is spun, as the market demands.

There are 16 men and 31 women employed in this department; the average daily output is about 5,952 pounds per day, an average of 298 pounds per dyeing machine, or 127 pounds per worker. It is time wages, and men are paid $1 per day, women 59.5 cents.

The average cost per pound of material dyed is 0.58 of a cent.

CARDED WOOLEN YARN SPINNING IN ENGLAND.

Considerable data on carded woolen yarn spinning were secured in England, showing not only earnings of the spinners but the efficiency of the machines. These data are condensed in Tables 29, 30, and 31, which follow.

In this tabulation the number of the yarn as given means the skein number as used for shoddy and low woolen yarn in England. No. 1 yarn is yarn of which there are 1,536 yards to a 6-pound skein; No. 10 yarn means 10 times 1,536 yards in a 6-pound skein. This number is used in the table, together with the use to be made of the yarn. Thus 10 F is No. 10 filling or weft yarn, 10 W is No. 10 warp yarn.

The time of draw means the time in seconds which the mule carriage requires to run back and forth the distance it travels, or the length of the draw.

The number of spindles each spinner tends is shown rather than the number of mules, which is always two.

The other items in the tables are believed to be clear.

TABLE 29.—*Efficiency of machinery and operatives and rates of pay to operatives for spinning yarns in Huddersfield, Colne Valley, and Bradford districts.*

Material.	Yarn No.	Time of draw.	Length of draw.		Spindles tended.	Produced per spindle per hour (56-hour week).	Labor cost per spindle per hour.[1]
		Seconds.	*Ft.*	*in.*		*Pounds.*	*Cents.*
Rag wool	10 F	23	7	0	600	0.066	0.035
	10 F	23	7	0	650	.066	.034
	10 F	23	7	0	700	.066	.033
	10 F	23	7	0	750	.065	.032
	10 F	23	7	0	800	.064	.031
	10 F	23	7	0	850	.063	.030
	10 F	23	7	0	900	.062	.028
Rag and cotton	18 F	24	7	0	600	.042	.036
	18 F	24	7	0	650	.042	.035
	18 F	24	7	0	700	.042	.034
	18 F	24	7	0	750	.041	.033
	18 F	24	7	0	800	.041	.031
	18 F	24	7	0	850	.040	.030
	18 F	24	7	0	900	.039	.029
Rag and cotton	26 F	25	7	0	600	.031	.037
	26 F	25	7	0	650	.031	.036
	26 F	25	7	0	700	.031	.035
	26 F	25	7	0	800	.031	.033
	26 F	25	7	0	750	.030	.032
	26 F	25	7	0	850	.030	.030
	26 F	25	7	0	900	.029	.029
Rag and crossbred	34 F	26	7	0	600	.025	.037
	34 F	26	7	0	650	.025	.036
	34 F	26	7	0	700	.025	.035
	34 F	26	7	0	750	.025	.035
	34 F	26	7	0	800	.024	.032
	34 F	26	7	0	850	.024	.031
	34 F	26	7	0	900	.023	.030
Cotton and rag wool	10 W	26	7	0	600	.061	.032
	10 W	26	7	0	650	.061	.035
	10 W	26	7	0	700	.060	.034
	10 W	26	7	0	750	.060	.033
	10 W	26	7	0	800	.050	.031
	10 W	26	7	0	850	.068	.030
	10 W	26	7	0	900	.057	.029
Cotton, rag, wool, and crossbred	18 W	26	7	0	600	.039	.037
	18 W	26	7	0	650	.039	.036
	18 W	26	7	0	700	.038	.035
	18 W	26	7	0	750	.038	.033
	18 W	26	7	0	800	.038	.032
	18 W	26	7	0	850	.037	.031
	18 W	26	7	0	900	.036	.029
Rag, wool, and crossbred	26 W	27	7	0	600	.029	.037
	26 W	27	7	0	650	.029	.036
	26 W	27	7	0	700	.028	.035
	26 W	27	7	0	750	.028	.034
	26 W	27	7	0	800	.028	.033
	26 W	27	7	0	850	.027	.031
	26 W	27	7	0	900	.027	.030
Rag and crossbred	34 W	27	7	0	600	.023	.038
	34 W	27	7	0	650	.023	.037
	34 W	27	7	0	700	.023	.036
	34 W	27	7	0	750	.023	.035
	34 W	27	7	0	800	.022	.033
	34 W	27	7	0	850	.022	.032
	34 W	27	7	0	900	.022	.031
Botany wool, noils from Botany, or rag from Botany.	24 W and F	27	6	6	650	.017	.037
Fine noils from Botany or Botany rags.	18 W and F	27	6	6	650	.023	.037
Rag, Australian, and cotton	15 W and F	27	6	6	650	.028	.037
Do	12 W and F	27	6	6	650	.032	.037
Rag wool	8 W and F	27	6	6	650	.037	.037
Rag wool, cotton, etc	8 F	30	6	0	720	.051	.035
Do	8 W	30	6	0	720	.056	.039
Rag wool and New Zealand	8 W	30	5	8	650	.071	.039
Crossbred	16 W	40	5	6	720	.034	.035
Do	24 W	30	6	6	720	.037	.038
Do	16 F	40	6	6	720	.022	.027
Rag wool and cotton	16 F	26–28	7	0	550	.057	.044
Rag wool	8 F	26–28	7	0	550	.093	.044

[1] Does not include foremen.

TABLE 30.—*Efficiency of machinery and operatives and rates of pay to operatives for spinning yarns in Huddersfield, Colne Valley, and Bradford districts.*

Material.	Yarn No.	Time of draw.	Length of draw.		Spindles.	Labor cost per pound.[1]	Labor cost per spindle.[1]
		Seconds.	*Ft.*	*in.*		*Cents.*	*Cents.*
Rag wool	10 F	23	7	0	600	0.531	1.967
	10 F	23	7	0	650	.517	1.916
	10 F	23	7	0	700	.506	1.857
	10 F	23	7	0	750	.493	1.793
	10 F	23	7	0	800	.481	1.724
	10 F	23	7	0	850	.469	1.653
	10 F	23	7	0	900	.456	1.578
Rag and cotton	18 F	24	7	0	600	.850	2.008
	18 F	24	7	0	650	.825	1.953
	18 F	24	7	0	700	.811	1.895
	18 F	24	7	0	750	.791	1.828
	18 F	24	7	0	800	.770	1.759
	18 F	24	7	0	850	.750	1.687
	18 F	24	7	0	900	.730	1.611
Rag and crossbred	26 F	25	7	0	600	1.168	2.048
	26 F	25	7	0	650	1.136	1.991
	26 F	25	7	0	700	1.116	1.932
	26 F	25	7	0	800	1.072	1.840
	26 F	25	7	0	750	1.048	1.772
	26 F	25	7	0	850	1.020	1.698
	26 F	25	7	0	900	.991	1.622
	34 F	26	7	0	600	1.470	2.063
	34 F	26	7	0	650	1.430	2.002
	34 F	26	7	0	700	1.400	1.945
	34 F	26	7	0	750	1.366	1.974
	34 F	26	7	0	800	1.331	1.807
	34 F	26	7	0	850	1.295	1.731
	34 F	26	7	0	900	1.259	1.653
Cotton and rag wool	10 W	26	7	0	600	.581	1.818
	10 W	26	7	0	650	.572	1.953
	10 W	26	7	0	700	.560	1.892
	10 W	26	7	0	750	.548	1.830
	10 W	26	7	0	800	.536	1.762
	10 W	26	7	0	850	.521	1.687
	10 W	26	7	0	900	.508	1.620
Cotton rag wool and crossbred	18 W	26	7	0	600	.948	2.045
	18 W	26	7	0	650	.921	1.991
	18 W	26	7	0	700	.900	1.935
	18 W	26	7	0	750	.876	1.863
	18 W	26	7	0	800	.853	1.792
	18 W	26	7	0	850	.832	1.722
	18 W	26	7	0	900	.811	1.647
Rag wool and crossbred	26 W	27	7	0	600	1.292	2.086
	26 W	27	7	0	650	1.257	2.028
	26 W	27	7	0	700	1.236	1.970
	26 W	27	7	0	750	1.199	1.895
	26 W	27	7	0	800	1.174	1.830
	26 W	27	7	0	850	1.146	1.758
	26 W	27	7	0	900	1.113	1.674
Rag and crossbred	34 W	27	7	0	600	1.646	2.126
	34 W	27	7	0	650	1.609	2.075
	34 W	27	7	0	700	1.570	2.007
	34 W	27	7	0	750	1.533	1.936
	34 W	27	7	0	800	1.496	1.868
	34 W	27	7	0	850	1.459	1.794
	34 W	27	7	0	900	1.419	1.714
Botany wool, noils from Botany or rag from Botany.	24 W. and F.	27	6	6	650	2.209	.374
Fine noils from Botany or Botany rags.	18 W. and F.	27	6	6	650	1.599	.374
Rag, Australian, and cotton	15 W. and F.	27	6	6	650	1.350	.374
Do	12 W. and F.	27	6	6	650	1.157	.374
Rag wool	8 W. and F.	27	6	6	650	1.013	.374
Rag wool, cotton, etc	8 F	30	6	0	720	.658	1.873
Do	8 W	30	6	0	720	.675	2.090
Rag wool and New Zealand	8 W	30	5	8	650	.544	2.094
Crossbred	16 W	40	5	6	720	1.034	1.912
Do	24 W	30	6	6	720	1.028	2.059
Do	16 F	40	6	6	720	1.184	1.976
Rag wool and cotton	16 F	26–28	7	0	550	.772	2.385
Rag wool	8 F	26–28	7	0	550	.469	2.385

[1] Does not include foremen.

TABLE 31.—*Efficiency of machinery and operatives and rates of pay to operatives for spinning yarns in Huddersfield, Colne Valley, and Bradford districts.*

Material.	Yarn No.	Time of draw.	Length of draw.	Spindles tended.	Produced per hour all spindles (58-hour week).	Spinners' earnings per hour (58-hour week).	Piecers' earnings per hour (58-hour week).	Total labor per hour[1] (58-hour week).
		Seconds.	*Ft. in.*		*Pounds.*	*Cents.*	*Cents.*	*Cents.*
Rag wool	10 F	23	7 0	600	38.293	11.972	8.379	20.352
	10 F	23	7 0	650	41.569	12.241	9.217	21.458
	10 F	23	7 0	700	44.276	11.517	10.879	22.396
	10 F	23	7 0	750	46.931	11.450	11.731	23.181
	10 F	23	7 0	800	49.448	11.203	12.569	23.772
	10 F	23	7 0	850	51.690	10.819	13.407	24.226
	10 F	23	7 0	900	53.741	11.100	13.407	24.507
Rag and cotton.	18 F	24	7 0	600	24.431	11.553	8.379	19.932
	18 F	24	7 0	650	26.500	12.672	9.217	21.890
	18 F	24	7 0	700	28.207	11.972	10.893	22.866
	18 F	24	7 0	750	29.897	11.903	11.731	23.634
	18 F	24	7 0	800	31.500	11.691	12.569	24.260
	18 F	24	7 0	850	32.966	11.312	13.407	24.719
	18 F	24	7 0	900	34.258	11.588	13.407	24.995
Rag and crossbred.	26 F	25	7 0	600	18.138	12.810	8.379	21.190
	26 F	25	7 0	650	19.638	13.091	9.217	22.309
	26 F	25	7 0	700	20.897	12.426	10.893	23.319
	26 F	25	7 0	800	22.190	12.206	11.586	23.793
	26 F	25	7 0	750	23.362	12.034	12.414	24.448
	26 F	25	7 0	850	24.431	11.655	13.241	24.896
	26 F	25	7 0	900	25.414	11.931	13.242	25.172
	34 F	26	7 0	600	14.517	13.068	8.275	21.344
	34 F	26	7 0	650	15.706	13.444	9.103	22.348
	34 F	26	7 0	700	16.776	12.724	10.758	23.482
	34 F	26	7 0	750	17.741	12.655	11.586	24.241
	34 F	26	7 0	800	18.724	12.517	12.413	24.931
	34 F	26	7 0	850	19.586	12.137	13.241	25.379
	34 F	26	7 0	900	20.362	12.413	13.241	25.655
Cotton and rag wool.	10 W	26	7 0	600	35.224	12.206	8.275	20.482
	10 W	26	7 0	650	38.241	12.672	9.217	21.890
	10 W	26	7 0	700	40.741	11.938	10.893	22.831
	10 W	26	7 0	750	43.172	11.938	11.731	23.669
	10 W	26	7 0	800	45.328	11.731	12.569	24.300
	10 W	26	7 0	850	47.414	11.312	13.407	24.719
	10 W	26	7 0	900	49.448	11.731	13.407	25.138
Cotton, rag wool, and crossbred.	18 W	26	7 0	600	22.310	12.776	8.379	21.155
	18 W	26	7 0	650	24.224	13.091	9.217	22.309
	18 W	26	7 0	700	25.966	12.460	10.893	23.353
	18 W	26	7 0	750	27.483	12.357	11.731	24.088
	18 W	26	7 0	800	28.983	12.357	12.569	24.926
	18 W	26	7 0	850	30.328	11.834	13.407	25.241
	18 W	26	7 0	900	31.500	12.150	13.407	25.557
Rag wool and crossbred.	26 W	27	7 0	600	16.690	13.194	8.397	21.591
	26 W	27	7 0	650	18.086	13.510	9.217	22.727
	26 W	27	7 0	700	19.224	12.879	10.893	23.772
	26 W	27	7 0	750	20.431	12.776	11.731	24.507
	26 W	27	7 0	800	21.500	12.672	12.571	25.243
	26 W	27	7 0	850	22.483	12.150	13.407	25.557
	26 W	27	7 0	900	23.345	12.569	13.407	25.976
Rag and crossbred.	34 W	27	7 0	600	13.362	13.614	8.379	21.993
	34 W	27	7 0	650	14.448	14.033	9.217	23.250
	34 W	27	7 0	700	15.431	13.333	10.893	24.226
	34 W	27	7 0	750	16.327	13.298	11.731	25.029
	34 W	27	7 0	800	17.224	13.195	12.569	25.764
	34 W	27	7 0	850	18.017	12.879	13.407	26.286
	34 W	27	7 0	900	18.741	13.195	13.407	26.612
Botany wool, noils from Botany or rag from Botany.	24 W. and F.	27	6 6	650	11.000	12.150	12.150	24.300
Fine noils from Botany, or Botany rags.	18 W. and F.	27	6 6	650	15.200	12.150	12.150	24.300
Rag, Australian, and cotton.	15 W. and F.	27	6 6	650	18.000	12.150	12.150	24.300
Do.	12 W. and F.	27	6 6	650	21.000	12.150	12.150	24.300
Rag wool	8 W. and F.	27	6 6	650	24.000	12.150	12.150	24.300
Rag wool, cotton, etc.	8 F.	30	6 0	720	12.372	12.372	12.600	24.972
Do.	8 W.	30	6 0	720	40.000	14.400	12.600	27.000

[1] Does not include foremen.

TABLE 31.—*Efficiency of machinery and operatives and rates of pay to operatives for spinning yarns in Huddersfield, Colne Valley, and Bradford districts*—Continued.

Material.	Yarn No.	Time of draw.	Length of draw.	Spindles tended.	Produced per hour all spindles (58-hour week).	Spinners' earnings per hour (58-hour week).	Piecers' earnings per hour (58-hour week).	Total labor per hour (58 hour week).
		Seconds.	*Ft. in.*		*Pounds.*	*Cents.*	*Cents.*	*Cents.*
Rag wool and New Zealand crossbred.	8 W.	30	5 8	650	46.296	12.600	12.600	25.200
Do	16 W.	40	5 6	720	24.667	12.896	12.600	25.496
Do	24 W.	30	6 6	720	26.704	14.511	12.933	27.450
Do	16 F.	40	6 6	720	16.028	9.886	9.720	19.606
Rag wool and cotton.	16 F.	26–28	7 0	550	31.192	12.039	12.039	24.077
Rag wool	8 F.	26–28	7 0	550	51.376	12.039	12.039	24.077

Wages in a number of wool-scouring and top-making establishments in the Bradford district of England are tabulated below.

It will be noted that night rates are nearly double the day rates, except in such occupations as bowl feeders, etc., when the operation is continuous throughout the 24 hours.

TABLE 32.—*Comparative rates of pay in representative combing and scouring and top-making establishments in Bradford, England.*

Occupations.	Wages per week.							
	Firm No. 1.		Firm No. 2.		Firm No. 3.		Firm No. 4.	
	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.
Backwashers	$3.28			$6.08				
Back-end minders	3.65	$6.18	$3.41	5.84	$4.86	$6.33		
Medium		6.08					$6.08	$6.28
Botany		5.74					5.84	
Gill-box minders	3.28	5.94	3.16	6.33				
Comb minders	3.77	7.18	3.53	6.33		6.80	6.57	7.55
Jobbers	5.84	5.84	4.86	6.08	6.57	6.82	6.57	7.06
Backwash minders	6.44	6.33	3.41			6.80	6.32	6.82
Medium		6.59					6.59	
Botany		6.33					6.32	
Making-up box minders		5.70						
Oiler	4.30							
Breakers-off	5.94							
Punch minders	6.68	6.67	3.41			6.32		6.28
Man on drier	6.67				4.38			
Man carries wool to bins		5.70						
Bowl minders		7.28	6.08	6.57	6.33	6.57	7.27	5.80
Bowl feeders:								
Medium		6.77						
Botany		6.37						
Steepers:								
Medium		7.26						
Botany		6.77						
Washhouse jobber		6.77					6.77	
Card jobbers		6.59						
Burr takers out		5.72			5.11		5.71	
Shoddy willeyers		6.59			4.38		6.59	6.28
Burr willeyers		5.72						
Wool runners into cards		5.72		5.84	4.87		5.72	6.28
Comb minders:								
Medium		6.57						
Botany		6.57						
Finishing-box minders		5.96	3.16	6.08		5.84	5.96	6.28
Backwash jobbers		6.59					6.59	6.08

TABLE 32.—*Comparative rates of pay in representative combing and scouring and top-making establishments in Bradford, England*—Continued.

Occupations.	Wages per week.							
	Firm No. 1.		Firm No. 2.		Firm No. 3.		Firm No. 4.	
	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.
Ball doffers:								
Medium		$6.20					$6.20	
Botany		6.08					6.08	
Pickers		5.72					5.72	
Steeper and feeder			$5.60	$6.08				
Jobber and roller lapper			6.08					
Strippers and grinders			7.06		$7.06			
Card feeders			5.11		4.38	$6.08	6.59	$5.78
Shoddy takers out			3.53	5.84				
Middle minders			3.41					
Strong-box minders				5.84				6.28
Repairing jobber		6.43						
Combing jobber		6.67						
Preparing jobber		6.67						
Odd jobber		6.43						
Feeders		4.80			4.87	6.32		
Minders, Noble comb						6.94		
Jobbers' assistants								6.08
Finishing jobber								6.28
Noil carrier								6.28
Can wheeler								6.28
Cot man								5.78
Underman								6.69

WOOLEN AND WORSTED SPINNERS' WAGES AT VERVIERS, BELGIUM.

The woolen and worsted spinning mills of Verviers, Belgium, are operated day and night; six day shifts and five night shifts per week. The hours on the day shift are 63 per week; on the night shift 50 hours. The day crews of one week become the night crews of the next, except for boys under 16 and women under 21 who are not permitted by law to work nights. This legal prohibition makes it necessary, of course, for such as would otherwise alternate with such boys and young women, to work nights regularly.

Under normal conditions a worsted yarn mule spinner in Verviers will earn $1.35 per day, and as he has six days' and five nights' work in two weeks his weekly earnings averaged over the two weeks would be $7.42. He has four piecers, one of whom is considered the head piecer, but is really an assistant or second spinner, and gets 80 per cent of the spinner's wages, or $5.94 per week; three piecers each get 70 per cent, or $5.19 a week; the day alley boy would get 35 per cent, or $2.59, while the alley boy on the night shift would receive 40 per cent on the spinners' earnings, or $2.97 per week.

Spinners operate two mules of usually 600 spindles each. Where older and smaller mules are operated the rate per pound of product is higher so that earnings are about equalized. It is mutually agreed between employers and employees through their organizations that the minimum earnings for a spinner shall be $1.25 per day, and the rates on old or new machines are fixed to safeguard this minimum wage. Practically all spinning of worsted and woolen yarn in this locality is mule spinning, there being very little ring spinning in Verviers, and such as there is in worsted yarns is on yarns approximately our No. 23. In this locality mule spinners are always men.

The occupations in all processes preparatory to spinning are filled by women, who are paid by the day. Women carders receive ordinarily 50 cents per day; combing machine operators are paid from 52 to 63 cents, though a few get as low as 48 cents, the average being approximately 57 cents a day. Women employed at doubling and twisting earn from 73 to 77 cents a day,

For spinners of carded woolen yarn the hours of labor for the day shift are as follows: On Mondays, 8 a. m. to 12 m., 1 to 4 p. m., 4.15 to 6.30 p. m. On other week days, 6 to 8 a. m., 8.30 to 12 m., 1 to 4 p. m., and 4.15 to 6.30 p. m. This is a total of 63 hours per week. The night shift begins work at 7 p. m. and continues until 6 a. m., with 15 minutes' pause at 9 p. m., 30 minutes' at midnight, and 15 minutes' at 4 a. m.; but on Saturdays work begins at 7 p. m. and ends at midnight. Hence the night shift works 5½ days, or 55 hours per week.

The owners of woolen yarn spinning establishments at Verviers have come to recognize the following minimum daily wage scale, although all of them provide for a piece rate that enables the more efficient operatives to earn more than the indicated amounts.

Daily minimum wages in woolen yarn spinning mills at Verviers, Belgium.

Spinner operating 2 mules	$0.8685
Frame spinner	.8685
Spinner operating 1 mule	.7720
Head piecer	.7237
Head piecer on doubling and twisting frames	.7720
Piecers tending about 200 spindles	.6672
Doffers or bobbin boys	.3860
Card cleaners	.8685
Card tenders:	
On 69-inch cylinder	.9650
On 59-inch cylinder	.8685
On 49-inch cylinder	.8202
On 39-inch cylinder	.7720
First breaker or blender	.7720
Other breakers or blenders	.7237
Packers (male)	.7720
Winders and bobbin menders (female)	.5790
Head charwoman	.5790
Second charwoman and seamstress	.5307
Spinner operating doubling or twisting frame	.9650
Twister (male or female):	
On frames with 100 spindles	.5790
On frames with over 100 spindles	.6755
On frames with over 150 spindles	.7720
Day laborers (male) of all sorts	.7720

The figures already given make it evident that wages in the worsted industry are higher than in the woolen industry.

The following table indicates the rates paid the spinner in one of the large worsted spinning mills of Verviers. The wages of piecers and bobbin boys are proportionate to the spinners' wages. Inasmuch as the other members of the group receive a total of 329 per cent of the spinner's wage, the total cost for mule spinning would be 429 per cent of the indicated figures. When each mule has but 540 spindles instead of 600, the rates are increased 10 per cent. For employees working only by day and not taking their turn at night work, the rate is decreased 5 per cent.

TABLE 33.—*Spinners' rates for spinning worsted yarn (on mules) in establishment A, at Verviers, Belgium.*

Count of yarn.		Undyed merino, per 100 lbs.	Undyed merino (half warp), per 100 lbs.	Dyed merino, per 100 lbs.	Undyed cheviot, per 100 lbs.	Colored cheviot, per 100 lbs.	Count of yarn.		Undyed merino, per 100 lbs.	Undyed merino (half warp), per 100 lbs.	Dyed merino, per 100 lbs.	Undyed cheviot, per 100 lbs.	Colored cheviot, per 100 lbs.
International count.	Nearest American.						International count.	Nearest American.					
		Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*			*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
15	13.29	19.3	19.3	26.3	19.3	28.0	38	33.66	43.8	46.4	49.9	53.8	57.8
16	14.18	19.3	19.3	26.3	19.3	28.0	39	34.55	44.6	47.7	51.2	56.0	58.7
17	15.06	20.1	20.1	27.1	20.1	28.9	40	35.44	46.4	49.0	56.9	57.8	59.5
18	15.95	21.0	21.0	27.1	21.0	29.8	41	36.33	47.3	50.3	58.2	....	......
19	16.85	21.9	21.9	28.0	21.9	30.6	42	37.21	48.1	51.7	59.1	....	......
20	17.72	22.8	22.8	28.0	29.8	32.4	43	38.10	49.9	53.0	60.4	....	......
21	18.61	24.5	24.5	28.9	30.6	33.7	44	38.95	50.8	54.3	61.3	....	......
22	19.49	25.4	25.4	30.2	32.4	35.0	45	39.87	51.7	55.6	62.2	....	......
23	20.38	26.3	26.3	31.1	33.3	35.9	46	40.76	53.4	56.9	63.5	....	......
24	21.26	27.6	28.0	32.4	34.6	39.4	47	41.64	54.3	58.2	64.8	....	......
25	22.15	28.9	29.3	33.7	35.9	40.3	48	42.53	55.2	59.7	66.1	....	......
26	23.05	29.8	30.6	34.6	38.5	41.0	49	43.41	56.9	60.8	67.0	....	......
27	23.92	31.5	32.0	37.6	40.3	42.9	50	44.30	57.8	62.2	68.3	....	......
28	24.80	32.4	33.3	38.5	41.1	43.8	51	45.19	58.7	63.5	71.8	....	......
29	25.70	33.3	34.6	39.8	42.5	45.5	52	46.07	60.4	64.8	72.7	....	......
30	26.58	34.6	35.9	40.7	43.8	46.4	53	46.96	61.3	66.1	74.0	....	......
31	27.47	35.9	37.2	42.0	44.6	48.1	54	47.84	62.2	67.4	74.8	....	......
32	28.35	36.8	38.5	43.3	46.8	49.0	55	48.73	63.9	68.7	76.2	....	......
33	29.24	38.1	39.8	44.2	47.7	49.9	56	49.62	64.8	70.0	77.5	....	......
34	30.12	39.4	41.1	45.5	49.0	51.7	57	50.50	65.7	71.3	....	....	......
35	31.01	40.3	42.5	46.4	50.3	52.5	58	51.32	67.0	72.7	....	....	......
36	31.90	41.6	43.8	47.7	51.2	54.3	59	52.27	68.3	74.0	....	....	......
37	32.78	42.9	45.1	48.6	53.0	56.9	60	53.16	74.4	80.1	....	....	......

NOTE.—The rate is per 100 pounds. Each mule has 600 spindles. The group for 2 mules of 600 spindles each consists of: 1 spinner; 1 head piecer, receiving 80 per cent of the spinner's wages; 3 piecers, each receiving 70 per cent of the spinner's wages; and 1 bobbin boy, receiving 39 per cent of the spinner's wages.

DYEING AND FINISHING.

The color element in woolen and worsted goods may be secured in many different ways. The principal systems are (1) dyeing in the wool, or raw material; (2) top dyeing; (3) yarn dyeing; (4) cross dyeing; (5) mixed or union dyeing; and (6) piece dyeing. Occasionally combinations of these may occur in the same piece of cloth.

Wool dyeing is a process of coloring the loose raw material before any of the manufacturing stages except that of scouring have been reached. It is done in open vats or in pans with perforated bottoms when done by the so-called hand process. Wool dyeing is also largely done by machinery.

Top dyeing, sometimes called slub dyeing, is the process of dyeing the wool in the tops or before it reaches the yarn stage of manufacture. In this way a number of colors can be most skillfully blended into the single thread of yarn, so that when woven into cloth an even mottled or mixed color can be produced with one thread and one shuttle which it would be impossible to produce by different colored yarns. This mottled yarn is used to considerable extent in the United States, but is being developed to a remarkable degree in German yarn spinning establishments and goes far to explain the cheapness and rapidity with which much of the "novelty weave" goods can be produced there.

Where yarns are spun from the natural wool—that is, no coloring material applied before the final finishing of the yarns—they are known as "yarns in the gray" or "in the white." Goods are woven "in the white," or from uncolored yarns when "piece dyeing" is to follow the weaving process. But when the color effect or design intended for the finished goods does not permit of piece dyeing, or where a more saturated or permanent color is desired, the yarn is dyed before weaving and the colored threads of yarn woven into the pattern or the cloth.

Cross dyeing is a term used when cloths are made of different materials, cotton and wool, or silk and wool (or all three) when one of the materials is dyed before weaving, but with a coloring material impervious to that to be used for dyeing the piece as a whole. Thus silk or cotton threads, yarn dyed, are woven into a piece of woolen or worsted goods, the wool being "woven in the white." The whole is then "piece dyed," but only the wool fibers absorb the coloring material in the piece-dyeing process, the silk or cotton (or in some cases both silk and cotton) threads resisting the action of the wool dyes and remaining as before, thus giving two or more strains of coloring in a cut of cloth which is in reality piece dyed. This is sometimes called "resist dyeing."

Mixed or union dyeing is where the warp is cotton and the weft or filling is of wool in some of its forms. The different natures of the vegetable and animal yarns are such that a woven piece can be put through a color bath, the wool or animal fibers taking up practically all of the coloring materials, the vegetable fibers remaining almost untouched; the piece is then placed in another bath where the cotton or vegetable fiber is colored while the wool remains unchanged.

Piece dyeing is where the goods are woven "in the gray" or "white" and the whole piece then subjected to the dyeing process. It is machine work.

Where the material is dyed before the final processes of manufacture have been applied, a more permanent color must be given, and the color must be "fast against" or able to resist the rubbing and handling that come with the various stages of manufacture.

Using the term "fast" in its technical sense of being impervious and having power of resistance, it must be apparent that when the goods are dyed in the wool the color must be "fast" to the friction and rubbing it will get in going through all the carding, slubbing, spinning, and weaving processes; it must be "fast" to the washing, rubbing, heating, steaming, pressing, and other finishing processes to which it will be subjected after weaving or in the finishing room, and then must be "fast" against the action of the light and of wear and water (spotting) when made up into garments, as well as being able to hold and maintain a luster or gloss. If it is to be made up into women's goods, it must be "fast" to the action of acids (perspiration) as well as the other requirements.

The chemical difficulties in the way of satisfactory dyeing decrease as the final manufacturing stages are reached; but the physical difficulties increase. It is more difficult for the chemist to select coloring materials that will stand all of the manufacturing processes and give equal satisfaction in the finished product than it is to select materials which will serve the purpose of piece dyeing. On the other hand, it is not physically difficult to saturate the loose wool thoroughly with the color stuffs so that the wool is dyed in every fiber. When the undyed wool is first woven into cloth, however, the difficulty is a physical one as well as a chemical one. Piece-dyed goods are rarely dyed clear through, and never dyed evenly clear through. In some cases this white or undyed center of the fabric serves to give a "live" appearance to cloths which in Germany is given by dyeing the white wool a more perfect or purer white. But, for the most part, the fact that piece dyeing does not penetrate equally all parts of the cloth, results in the outer surface wearing off, leaving the surface gray before the cloth has had a considerable portion of the wear of which it is capable. Skill in piece dyeing, therefore, depends largely on securing the most thorough and even penetration of color possible. Time and care are elements in successful dyeing and finishing which can not be eliminated by machines.

In the matter of quality of dyestuffs, Germany takes the lead, while the matter of dyeing specialization has gone further in England than elsewhere. Not only are there establishments which do only raw wool dyeing, others which dye only yarns, while whole groups of establishments do only piece dyeing, but even among the piece-dyeing establishments there are those that dye only black, others only blue, others only a shade, as "turkey red." This differentiation has been established for years, and generations have grown up in the dyehouses.

In Germany and France dyeing and finishing are most commonly done by the same firms, and in some instances all the processes of manufacture from wool scouring to dyeing and finishing are performed under the same roof as with us.

It is alleged that as an offset to the skill that comes with specialization there is a lack of interest that attaches to ownership of the material in the dyehouses of England and Europe as against the establishment dyeing in this country. That is to say, the English dyeing establishments do a jobbing business; they dye goods on a contract basis, having no property interest in the goods themselves. The same is true of the finishing establishments. In the United States, as a rule, the dyeing and finishing is done by the firm which owns the material and controls all the processes of manufacture. Here the knowledge of the character of the material, of the kind of final finish intended, etc., is utilized at all stages, and dyeing is done to better purpose and with better final effect.

The public or separate dyeing and finishing establishment in the United States is at a disadvantage as compared with English and continental dyeing and finishing plants from the fact that so many of the great textile establishments do their own dyeing and finishing, thus leaving the public dyer with the product only of the smaller plants, each with its particular class of work, which latter in turn requires an equipment consisting of a large variety of dyeing and finishing machinery to meet the almost endless line of goods, most of which come in small quantities, with the result that much valuable machinery is idle a large proportion of the time. In addition to the difference in wages as between this country and Europe, the distance from the mills to the dyeing and finishing establishments entail heavy freight expenses and loss of time of goods in transit. Nevertheless, the independent dyeing and finishing establishments seem to be growing in favor and one of the largest separate dyeing plants in this country is being built in New England by one of the firms doing a like business in Bradford, England.

WAGES IN DYEING ESTABLISHMENTS IN ENGLAND, GERMANY, FRANCE, BELGIUM, AND THE UNITED STATES.

ENGLAND.

The minimum rate of wages for raw wool dyers, top or slub, and for yarn dyers in the principal wool district of England is 24 shillings ($5.84), 25 shillings ($6.08), and 26 shillings ($6.33) a week; the 25-shilling rate applies to panside men, machine men on Klauder-Weldon machines, and to the so-called "makers-up." Time and a half rates are paid for all overtime after 7 o'clock p. m.

At Halifax and Leeds the rates paid to dyers employed in dyeing and finishing concerns have hitherto been 1 shilling (24 cents) per week below the Bradford rates. The blue dyers form the only exception to this general statement. For this class of work the Leeds dyers receive 24 cents each week more than those of any other locality. At present Halifax rates are still 24 cents below, but Leeds rates more nearly approximate Bradford rates.

At Huddersfield there are three distinct classes of work done, namely, raw cotton and wool dyeing, hank and skein dyeing, and piece dyeing. The recognized standard time rate for dyers' laborers in Huddersfield, as it is now also at Bradford, is $6.33 per week of 55 hours. Until October, 1910, the standard rate was $5.84; one large firm paid $6.33; and one firm of silk dyers paid and still pays $6.08 for 56 hours. In July, 1911, however, the rate of $6.33 per week was adopted in accordance with the terms of a formal agreement between the Master Dyers' and Finishers' Association and the National Society of Dyers and Finishers.[1]

A few firms in the Huddersfield district still pay less than $6.33, but the average wage for men may be safely put at $6.20.

It must be observed that these particulars relate entirely to men employed in dyehouses not attached to manufacturing concerns. Where spinners or manufacturers dye their own raw materials or pieces, the conditions differ from those observed by proprietors of what are known as "country" dyehouses. Usually the wages are lower and the hours of labor those of the mill, i. e., 55½ or 58 per week.

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[1] The following is the text of the wage agreement referred to:

Agreement made this October 27, 1910, between the Master Dyers' and Finishers' Association and the National Society of Dyers and Finishers in re Dyers' Laborers.

1. An immediate advance to be given of 1s. per week on all wages under and including those rated at 24s. Such advance to be paid from the making up day nearest to October 27.
2. On July 1, 1911, that standard rate of wages shall be a minimum wage of 26s. per week for all operatives of the age of 21 years.
3. On or after April 1, and prior to July 1, 1911, the men to be entitled to apply to the conciliation committee or, failing agreement, to an arbitrator, with the object of showing that the general standard rate in the Huddersfield district is, at the date of application, 25s. per week, and in the event of such rate being shown the standard rate of wages, at once to be advanced to a minimum wage of 26s. per week for all operatives of the age of 21 years.
4. Overtime to be paid at the rate of time and a quarter on and after the first pay day following the final acceptance of this agreement, overtime to commence after a normal day has been worked.
5. All night work to be paid at ordinary rates for all hours of attendance at the mill, including 1¼ hours for meals, with 6d. a night in addition. Time between Saturday 1 p. m. and 6 a. m. Monday to be at the rate of time and a half; outside the ordinary hours of night work time and a quarter to be paid.
6. A conciliation committee to be appointed by both sides and to consist of three representatives from each side and the secretaries for the consideration and settlement of any question arising out of this agreement or between any member of the employers' association and his workpeople, and which can not be settled by the two secretaries and the parties concerned.
7. The parties agree that any question of definition or of intention arising out of this agreement shall be dealt with under clause 6, or failing agreement under that clause, shall be left to the sole decision of Mr. G. R. Askwith, K. C., or an arbitrator appointed by him; and that he shall be sole arbitrator upon any question arising under clause 3.
8. This agreement to remain in force for 12 months from this date and thereafter subject to three months' notice on either side to be given in writing.

The employers and the workmen through a joint agreement recognize a standard of efficiency or of output and make it a part of such agreement, as follows:

BOTANY (COLORS).

The standard weight per panful shall be 125 pounds.

Odd lots shall be dyed from 125 pounds to 135 pounds.

Odd lots over 135 pounds shall be split into two panfuls.

Odd lots in navies and dark browns shall be dyed from 125 pounds to 150 pounds per panful.

Odd lots in navies and dark browns over 150 pounds shall be split into two panfuls.

In lots of 1,000 pounds or over, 40 pounds additional weight may be divided into the 1,000 pounds.

Should there be over 40 pounds overweight, it shall be made into another lot.

BOTANY (BLACKS).

The standard weight per panful shall be 143 pounds.

Odd lots shall be dyed from 143 pounds to 150 pounds.

Odd lots over 150 pounds shall be split into two panfuls.

In lots of 1,000 pounds or over, 40 pounds additional weight may be divided into the 1,000 pounds.

Should there be over 40 pounds additional weight it shall be made into another lot.

CROSS-BRED (COLORS).

The standard weight per panful shall be 150 pounds.

Odd lots shall be dyed from 150 to 170 pounds.

Odd lots over 170 pounds shall be split into two panfuls.

In lots of 1,000 pounds or over, 44 pounds additional weight may be divided into the 1,000 pounds.

Should there be over 44 pounds overweight, it shall be made into another lot.

CROSS-BRED (BLACKS).

The standard weight per panful shall be 166 pounds.

Odd lots shall be dyed from 166 pounds to 170 pounds.

Odd lots over 170 pounds shall be split into two panfuls.

In lots of 1,000 pounds or over, 44 pounds additional weight may be divided into the 1,000 pounds.

Should there be over 44 pounds overweight, it shall be made into another lot.

ENGLISH (COLORS AND BLACKS).

The standard weight per panful shall be 250 pounds.

Odd lots shall be dyed from 250 pounds to 300 pounds.

Odd lots over 300 pounds shall be split into two panfuls.

In lots of 1,000 pounds or over, 80 pounds additional weight may be divided into the 1,000 pounds.

Should there be over 80 pounds overweight, it shall be made into another lot.

PANFULS OF BLACKS PER DAY.

In the dyeing of blacks, in Botany, cross-breds, and English, the time allowed shall be at the rates of eight panfuls per day of 13 hours, the finishing to be done jointly between the chromers and dyers. 10 minutes extra shall be allowed for every extra turn, and for a block-up and two turns 30 minutes extra shall be allowed.

MOHAIR AND MOHAIR AND WOOLS.

The weight per panful shall not exceed 400 pounds.

The standard weight to be dyed in machines shall be as follows: Botany, 10 pounds per stick; cross-breds, 12 pounds per stick; English, 14 pounds per stick.

It was further agreed, that:

For the purpose of defining the class of wool being worked, the following facts shall be observed: Wool of sixties counts and over shall be classed as botany; wool of forties counts and below sixties shall be classed as crossbreds; wool below forties shall be classed as English.

PIECE DYEING.

In the piece-dyeing establishments, occupational lines were abolished by the agreement of 1907, amending in this particular the agreement of 1899. Prior to 1907 the wage rates attached to an occupation, and men changing the character of their work received a different rate of pay. By the amendment of 1907, which is still in force, the wage rate was made applicable to classes of men, and the employing firms reserved the right to employ these men at any work they saw fit, so long as they paid the rate.

The agreement between the Dyers' Trade Unions and the Bradford Dyers' Association, Limited, provides for the following classification of employees: (1) Men; (2) improvers; (3) boys.

Men shall be defined as those receiving from 26 shillings to 28 shillings per week.

Improvers are those receiving from 18 shillings and under 26 shillings per week.

Boys are those receiving 10 shillings and under 18 shillings per week.

It is agreed that the average rate of wages of each separate group and of the whole shall not be reduced during the existence of this arrangement.

The wages of boys and improvers shall be dealt with in the following manner:

Boys shall commence at 10 shillings per week; they shall be advanced 2 shillings after one year's service and 1 shilling per annum in succeeding years, but on attaining 18 years of age shall receive 18 shillings per week.

The wages of improvers shall be advanced from 18 shillings per week 2 shillings after one year's service in this class, and 1 shilling per annum in succeeding years until they reach a wage of 26 shillings.

Advances shall be made on the 1st day in January of each year.

In all classes it is understood that the rates stated are for the branches classified as Bradford, with 1 shilling less for Halifax and Leeds and 2 shillings less for the country branches.

The rates in piece dyeing are for ordinary laborers. Leading hands, who number about one in four, receive 2 shillings per week more, exceptional hands getting, of course, a slight advance.

Taking the pay rolls of all the establishments party to this agreement, as of January 1, 1911, we have 12 establishments in the Bradford district employing 2,769 persons, of whom 1,955 are classified as men i. e., receiving 26 shillings ($6.33) or more per week; 457 as improvers, i. e., receiving 18 shillings ($4.381) or more per week; and 357 boys. Table 34 shows the number in each class at each rate paid, for the Bradford district, for the Leeds and Halifax district, and for the establishments outside of those classed generally as "country district."

TABLE 34.—*Rates paid dyehouse employes in specified districts in England.*

Town or district.	Men.			Improvers.			Boys.		
	Number.	Rate in shillings.	American equivalent.	Number.	Rate in shillings.	American equivalent.	Number.	Rate in shillings.	American equivalent.
Bradford	27	32	$7.786	50	25	$6.082	7	17	$4.14
	3	31	7.542	69	24	5.84	8	16	3.89
	46	30	7.30	89	23	5.60	28	15	3.65
	34	29	7.06	54	22	5.36	73	14	3.41
	329	28	6.82	65	21	5.113	102	13	3.16
	123	27	6.57	63	20	4.87	113	12	2.92
	1,393	26	6.33	67	18	4.38	26	10	2.43
Total and average	1,955	27.14	6.594	457	21.82	5.31	357	12.97	3.156
Leeds and Halifax	1	31	7.54	37	24	5.84	1	16	3.89
	7	30	7.30	14	23	5.60	2	15	3.65
	5	29	7.06	24	22	5.36	11	14	3.41
	5	28	6.82	11	21	5.11	10	13	3.16
	80	27	6.57	19	20	4.87	20	12	2.92
	67	26	6.33	10	19	4.62	26	11	2.68
	338	25	6.08	1	18	4.83	......	10	2.43
	......	......	......	11	17	4.14	......	9	2.19
Total and average	503	25.6	6.23	127	21.6	5.25	70	12.2	2.97
Country	32	30	7.30	20	23	5.60	11	15	3.65
	9	29	7.06	21	22	5.36	12	14	3.41
	13	28	6.82	15	21	5.11	44	13	3.16
	21	27	6.57	20	20	4.87	25	12	2.92
	15	26/6	6.45	27	19	4.62	35	11	2.68
	131	26	6.33	21	18	4.38	17	10	2.43
	1	25/6	6.20	1	17	4.14	......	9	2.19
	71	25	6.08	16	16	3.89	......	8	1.95
	1	24/6	5.96	......	......	......	......	......	......
	566	24	5.84	......	......	......	......	......	......
Total and average	860	24.8	6.03	141	19.9	4.84	144	12.2	2.97

From the table it will be seen that while for dyers in Bradford classified as "men," i. e., all-around dyers, the range in wages is from 26 shillings to 32 shillings a week, only 27 receive the highest, while 1,393 receive the lowest rate for the class, and the average for the 1,955 men is 27.14 shillings, or $6.59 per week. For improvers the average is 21.82 shillings, or $5.31. Here the range is from 18 to 25 shillings, with the number of employees pretty evenly distributed throughout the range. The average wage for the 357 boys is 12.97 shillings ($3.16).

In the Leeds and Halifax districts only one man gets the highest rate of 31 shillings ($7.54), while 338 get the lowest—25 shillings ($6.08). The average for the 503 employed in the four establishments in this group is 25.6 shillings, or $6.23. In the country-district group there are 8 dyeing establishments or firms, with 1,145 employees. The average earnings of the 860 of those classified as men are 24.8 shillings, or $6.03 per week. The working hours of dyers in England appear to be as follows: From 6 a. m. to 6 p. m. five days in the week, with 2 hours out for meals and "pauses" and 5½ hours net work on Saturday, making a net working week of 55½ hours. On days other than Saturday, however, the dyers may be held in the plant until 7 p. m. without extra pay; i. e., overtime rates do not begin until after 7 p. m. The overtime rate is 50 per cent advance on regular rates.

CLOTH FINISHING, HUDDERSFIELD.

Closely related to dyeing is the finishing of manufactured cloth. Like dyeing, this is sometimes done by some manufacturers in their "home" finishing rooms, while others have no finishing plant and send their woven pieces to the "country" finishers to be finished. The following are typical rates of payment in "country" finishing concerns in the Huddersfield district:

	Weekly wages.
Scourers:	
Foreman	$8.52
Men	5.84
Youths	3.89
Warehouse:	
Foreman	6.57
Laborers	5.11 and $5.35
Lads	2.19 and 2.92
Tenterers:	
Leading hand	5.84
Laborers	5.35
Lads	2.92
Menders, knotters, burlers: women	3.41 to $3.89
Washers-off, men	5.35 to 6.33
Pressers, men	8.52 to 9.73
Cutters:	
Men	7.79
Lads (tail tenders)	2.19 to 2.92
Raisers, men	7.30
Perchers, men	6.57
Dampers:	
Leading man	6.33
Youths	3.65
Blowers:	
Leading man	6.81
Lads and youths	3.65 to 4.87
Millers:	
Leading man	6.81
Laborers	5.35 to 5.84

DYEHOUSE CHARGES IN ENGLAND.

Prices charged cloth manufacturers by the dyeing establishments may be of interest as supplementary to the wages paid in the dyehouses.

A compilation has therefore been made of prices for dyeing on a number of fabrics and in several different establishments.

The rates as charged are per piece of a specified maximum length on cloths of specified width and weight. This price per length has been reduced to price per yard, and the rate stated in United States money.

The other factors entering into prices charged are shown in the following tabulation of these scales.

The following rates per yard are charged in an English dyeing establishment for dyeing luster and alpaca linings and Italians in 54-yard lengths of specified width and weights:

Ordinary finish:	
72-inch black-warp luster linings (28 pounds per 54 yards)	$0.02704
72-inch cross-dye, common color (24 pounds per 54 yards)	.04281
72-inch cross-dye, common color (27 pounds per 54 yards)	.04844
72-inch cross-dye navy (24 pounds per 54 yards)	.05295
72-inch cross-dye navy (27 pounds per 54 yards)	.05745
72-inch black-warp alpaca linings (18 pounds per 54 yards)	.03380
72-inch cross-dye alpaca, common color (24 pounds per 54 yards)	.06646
72-inch navy (24 pounds per 54 yards)	.07548
72-inch black-warp Italians, black (28 pounds per 54 yards)	.02704
72-inch white-warp Italians, black (28 pounds per 54 yards)	.03154

Permanent finish:

72-inch luster linings (all weights per 54 yards)	$.04845
72-inch black-alpaca (18 pounds per 54 yards)	.05520
72-inch black-warp Italians, black (all weights per 54 yards)	.04844
72-inch white-warp Italians, common color (22 pounds per 54 yards)	.05069
72-inch white-warp Italians, extra colors (22 pounds per 54 yards)	.06421
72-inch white-warp Italians, fine color (22 pounds per 54 yards)	.09125

Extra charges are made for all weights above those specified: (*a*) Extra charges are made for permanent finish in colors. (*b*) Extra charges are made for stripes and checks.

The following rates per yard are charged in an English dyeing establishment for dyeing luster and alpaca linings and vestings (for America):

Luster and alpaca linings:

36-inch luster linings, black warp black (15 to 16 pounds per 54 yards)	$0.01464
36-inch luster linings, cross-dye color (15 to 16 pounds per 54 yards)	.02478
36-inch luster linings, cross-dye navy (15 to 16 pounds per 54 yards)	.02929
36-inch mohair linings, black warp black (15 to 16 pounds per 54 yards)	.01915
36-inch mohair linings, cross-dye color (15 to 16 pounds per 54 yards)	.03379
36-inch mohair linings, cross-dye navy (15 to 16 pounds per 54 yards)	.03830

Extra charged for each 3 pounds extra. The rate for each 10 yards over 54 yards= $0.0812, or $0.00812 per yard. White and colored stripes extra in blacks only.

Vestings:

36-inch luster brilliantines, black warp black (65-yard lengths)	$0.00936
36-inch luster brilliantines, cross-dyed common color (65-yard lengths)	.01310
36-inch luster brilliantines, cross-dyed (65-yard lengths)	.01685
60-inch luster brilliantines, black warp black (65-yard lengths)	.02340
60-inch luster brilliantines, cross dyed common color (65-yard lengths)	.03088
60-inch luster brilliantines, cross dyed (65-yard lengths)	.03462
36-inch mohair brilliantines, black warp black (50-yard lengths)	.01703
36-inch mohair brilliantines, cross dyed common color (50-yard lengths)	.03163
36-inch mohair brilliantines, cross dyed (50-yard lengths)	.03893
60-inch mohair brilliantines, black warp black (50-yard lengths)	.03772
60-inch mohair brilliantines, cross dyed common color (50-yard lengths)	.04866
60-inch mohair brilliantines, cross dyed (50-yard lengths)	.05961

The following rates per yard are charged in an English dyeing establishment for dyeing Botany weft cashmeres in 60–65 yard lengths of specified widths and weights:

[27 to 60 inches in width.]

Number of pounds.	Black warp black.	White warp black.	White.	Colors.
8 pounds	$0.01030	$0.01217	$0.01404	$0.01685
10 pounds	.01404	.01591	.01778	.02059
12 pounds	.01528	.01716	.01965	.02246
14 pounds	.01653	.01841	.02153	.02433
16 pounds	.01778	.02059	.02340	.02620
18 pounds	.01903	.02184	.02527	.02808
20 pounds	.02121	.02308	.02714	.02994
22 pounds	.02246	.02433	.02901	.03182
24 pounds	.02433	.02620	.03088	.03369
26 pounds	.02620	.02808	.03276	.03556
28 pounds	.02808	.02994	.03462	.03743
30 pounds	.02994	.03182	.03650	.03930
32 pounds	.03182	.03369	.03837	.04117
34 pounds	.03369	.03556	.04024	.04305
And $0.1218 per 2 pounds extra.				

Shots (per piece on color price)	$0.2433
Extra lengths (per 10 yards or part thereof)	.0182
Cross dyes (per piece less)	.1218
Mohair stripes (extra)	.2433
Artificial silk stripes (extra)	.2433
Raising (extra)	.6084

The following rates per yard are charged in an English dyeing establishment for dyeing lusters, siciliennes, brilliantines, cords, and granadas of specified widths:

TABLE 35.—*Rates charged for dyeing specified kinds of cloth.*

Inches in width.	Rates per yard for kinds of cloth specified.							
	White warp luster.[1]		White warp luster siciliennes.[1]		White warp mohair brilliantines.[1]		White warp mohair siciliennes.[1]	
	Cream and white.	All other colors.	Cream and white.	All other colors.	Cream and white.	All other colors.	Cream and white.	All other colors.
30 inches	$0.01318	$0.01825	....	....	....	....	....	....
30 inches	.01724	.02028	....	....	....	....	....	....
31 and 32 inches	.01825	.02129	$0.02231	$0.02535	$0.02677	$0.03528	$0.03650	$0.04379
33 to 36 inches	.02231	.02535	.02636	.02940	.03163	.04015	.04136	.04866
37 to 40 inches	.02636	.02940	.02940	.03244	.03650	.04379	.04379	.05353
41 to 45 inches	.02839	.03143	.03447	.03751	.04015	.04745	.04866	.05961
46 to 50 inches	.03042	.03650	.04379	.04988	.04866	.05353	.05718	.06448
51 to 55 inches	.03447	.03954	.05231	.05839	.05474	.05961	.06448	.07543
56 to 60 inches	.04055	.04461	.05961	.06569	.05961	.06569	.07178	.08516

Inches in width.	Mohair brilliantines.[1] [2]				Mohair siciliennes and cords.[1] [2]			
	Common colors.	Extra colors.	Superior finish.	Tint.	Common colors.	Extra colors.	Superior finish.	Tints.
32 inches	$0.02433	$0.02920	$0.02190	$0.02433	$0.02920	$0.03406	$0.02677	$0.03163
33 to 36 inches	.02920	.03650	.02433	.02677	.03650	.04379	.02920	.03406
37 to 40 inches	.02920	.03650	.02677	.02920	.03650	.04379	.03163	.03649
41 to 45 inches	.03285	.04015	.03163	.03406	.04136	.05109	.03649	.04136
46 to 50 inches	.03650	.04623	.03650	.03893	.04623	.05596	.04136	.04623
51 to 55 inches	.04136	.05110	.04136	.04379	.05353	.06326	.04623	.05109
56 to 60 inches	.04623	.05596	.04623	.04866	.05839	.06812	.05109	.05596

Inches in width.	Mohair granadas.[1] [2]				Luster brilliantines.[1] [2]			
	Common color.	Extra color.	Superior finish.	Tint.	Common colors.	Navy, green, etc.	Superior finish.	Tint to shades.
32 inches	$0.03406	$0.03893	$0.03406	$0.03893	$0.01420	$0.01825	$0.01014	$0.01419
33 to 36 inches	....	....	.03650	.04136	.01622	.02028	.01217	.01622
37 to 40 inches	....	....	.04136	.04623	.01825	.02231	.01420	.02028
41 to 45 inches	....	....	.04623	.05110	.02129	.02531	.01622	.02231
46 to 50 inches	.05596	.06569	.05353	.05839	.03163	.03893	.02433	.03406
51 to 55 inches	.07299	.08272	.06083	.06569	.03650	.04379	.02920	.03893
56 to 60 inches	.07299	.08272	.06569	.07056	.04136	.04866	.03406	.04379

Inches in width.	Luster sicilienne and cords.[1] [2]				Luster granadas.[1] [2]	
	Common colors.	Navy, green, etc.	Superior finish.	Tint to shades.	Superior finish.	Tint to shade.
32 inches	$0.01622	$0.02028	$0.01420	$0.01825	$0.02230	$0.03040
33 to 36 inches	.01825	.02231	.01622	.02028	....	.03244
37 to 40 inches	.02129	.02531	.01825	.02230	....	.03650
41 to 45 inches	.02531	.02940	.02028	.02839	....	.04055
46 to 50 inches	.03650	.04379	.02920	.04136	....	.04461
51 to 55 inches	.04379	.05353	.03406	.04623	.04055	.05069
56 to 60 inches	.04866	.05839	.03893	.05109	.04461	.05475

[1] Surcharge: Higher rate is charged if less than 200 yards of a shade is dyed.

[2] Dyes: Common colors and navy with white or colored stripes, extra is charged.

TABLE 35.—*Rates charged for dying specified kinds of cloth*—Continued.

Inches in width.	Blacks.				
	Black warp plain and figured alpaca and mohair brilliantines.	Black warp mohair and alpaca sicilliennes.	Black warp mohair granadas.	Black warp luster brilliantines.	Black warp luster sicilliennes.
Not over—					
32 inches	$0.01582	$0.02312	$0.03163	$0.01217	$0.01420
36 inches	.01703	.02555	....	.01420	.01622
40 inches	.01947	.02920	....	.01622	.01825
45 inches	.02312	.03407	....	.01825	.02231
50 inches	.02677	.03893	.05353	.02433	.02920
55 inches	.03042	.04380	.06326	.02677	.03407
60 inches	.03407	.04867	.06326	.02920	.03893
70–80 inches	{ .04137 .04867 }	.05840	....	....	....

Inches in width.	Blacks.				
	Black warp luster granadas.	Half mourning mohair and alpaca brilliantines.	Half mourning mohair and alpaca sicilliennes.	Half mourning luster brilliantines.	Half mourning luster sicilliennes.
Not over—					
32 inches	....	$0.02190	$0.03650	$0.01622	$0.02433
36 inches	....	.02433	.03893	.01825	.02636
40 inches	....	.02920	.04380	.02231	.03042
45 inches	....	.03650	.05110	.02636	.03650
50 inches	$0.04380	.04867	.05840	.03893	.04867
55 inches	.05353	.05353	.06326	.04380	.05353
60 inches	.05353	.05840	.06813	.04867	.05840

Extra weights: Where the weight exceeds the standard weight specified by the establishment for given lengths, extra is charged; longer lengths charged extra in proportion.

In many plants, in each of the countries covered by this report, dyeing and finishing are done in the same establishments. This is more generally true of Germany, France, and Belgium than of England. So general is it, however, that it has not been found practical to separate the material for very many plants, and from this point on the subjects will be considered together.

Cloth finishing takes place after the final dyeing in piece-dyed stuff; or it begins immediately from the loom in wool and yarn-dyed stuff.

Finishing is a general term applied to a group of operations and processes, the first of which is:

Mending and burling is the process of correcting the mistakes in the weaving. It consists in catching up broken or defective threads of either warp or weft and weaving in by single threads with a needle to make good the defect. It is handwork, done always and everywhere by women, and requires great skill and dexterity.

The next step in the finishing process after mending is washing and fulling. This is machine work everywhere, the labor is paid by the day and not by the piece or yard; it is generally one person to a machine, though in some instances one person to two machines. The character of the work is such that no study of efficiency or comparative output per employee can be made. The process cleans the cloth and shrinks or fulls it up for further finishing. It can be fairly stated that one of the elements entering into the finer finished German and French woolen and worsted cloths is that they are fulled up more—that is there is a greater percentage of shrinkage in the fulling process. This, of course, means fewer yards of salable product per yard of loom production.

Passing over minor manipulations through which the cloth passes, and which vary from firm to firm and from cloth to cloth, the next important process is that of teasling. Teasling is machine work, one man to one machine, and the purpose of the operation is to raise the nap of the cloth, to give it a fluffy surface.

Drying and tentering follows the teasling, and simply dries and stretches the cloth for shearing. Drying and tentering is done on machines, usually two men to one machine; it is generally piecework. Then shearing, which cuts down the nap raised by the teasling machine to a proper and even surface. This is machine work, done by both men and women, but usually men. It is piecework, and usually one man or woman to a machine, sometimes two persons to one machine.

The final process of pressing and glossing serves to shrink the cloth to the proper dimensions and to give it a gloss or surface finish, which prepares it for the market.

DYEING—GERMANY.

As indicated above, the separate independent dyeing establishment is the rule in Germany as in England, while the dyeing of goods by the cloth-making establishments is the exception.

In Crimmitschau, Saxony, the textile industry covers the manufacture of both men's and women's goods and the spinning of yarns. There are 80 spinning establishments, with 210,000 spindles, in addition to numerous weaving, dyeing, and finishing plants. Crimmitschau exports yarns, and does a specially large export business in men's heavy cloths. Owing to the proximity of so many spinning mills, as well as because of the nearness to Gera, which buys practically all of its yarns; the dyeing establishments of Crimmitschau, while specializing to some extent, do all kinds of dyeing, i. e., wool, yarn, and piece dyeing.

The following table gives the daily hours of labor and the weekly rate of wages for each of the 49 dyeing establishments of Crimmitschau, separating the industry into its three fundamental branches: Wool dyeing, piece dyeing, and yarn dyeing. The rates are those paid in June, 1911.

TABLE 36.—*Wages in 49 dyeing establishments in Crimmitschau, Germany.*

	Hours per day.	Wages per week.		
		Wool dyers.	Piece dyers.	Yarn dyers.
Establishment—				
1	10½	....	....	$4.05–4.28
2	10½	$4.28	$4.63	4.28
3	10½	....	3.81–4.28	....
4	10½	4.28	3.93	....
5	10½	3.93	3.93	3.93
6	10½	....	3.81	4.76
7	10½	4.05	4.05	4.05
8	10½	3.57	....	....
9	10½	3.60	....	....
10	10½	....	4.76	3.81
11	10½	4.16	....	....
12	10½	3.81	3.93–4.28	5.00
13	10½	4.40	4.40	4.40
14	10½	....	4.13	....
15	10½	....	4.05	....
16	10½	....	3.80–4.05–4.76	....
17	11	3.81	....	....
18	10½	....	3.80	....
19	10½	[1] 4.05	....	....
20	10½	[2] 3.81	....	....
21	10½	....	3.81	....
22	10½	3.93	....	....
23	10½	4.05–4.62	....	....
24	10½	4.05–4.28	....	....
25	10½	3.58	....	....
26	10½	4.05	....	....
27	10½	[3] 4.05	....	....
28	10½	[3] 4.05	....	....
29	10½	4.05	....	....
30	10½	4.05	....	....
31	10½	4.05	....	....
32	10½	3.93	....	....
33	10	4.05	....	....
34	10½	4.05	....	....
35	10½	4.05	....	....
36	10½	3.81–4.12	....	....
37	10½	3.33–4.05	....	....
38	10½	4.05	....	4.05
39	10½	3.57–4.28	....	....
40	10½	....	4.05–4.52	....
41	10½	4.05	4.05	4.05
42	10½	4.19	4.19	4.29
43	11	4.05	....	....
44	10½	4.05	....	....
45	10½	4.05	4.05	4.05
46	10	4.52	....	....
47	10½	....	5.00	....
48	11	3.21	3.45	3.93
49	10	....	4.50	4.50

[1] First hands get $5.71. [2] Foremen get $7.14. [3] One operative gets $4.28.

Further details were secured concerning operatives on pressing machines and on drying machines for five establishments, covering in each case a period of five weeks. These data covered earnings and output for the period, and these, reduced to an average for all employees concerned, are shown in the following table:

TABLE 37.—*Average rates of wages for operatives on pressing and drying machines.*

Locality.	Pressers.				Dryers.	
	Average weekly wage.	Average hourly wage.	Average wage per yard of output.	Average wage per 100 yards of output.	Average hourly wage.	Average wage per 100 yards of output.
Gera	$5.53	$0.0843	$0.000689	$0.0689	$0.0808	$0.0988
Do	7.56	.108	.00065	.065	.1646	.1123
Do	....	....	....	....	.0649	.0953
Greiz	4.55	.0632	.00067	.067	.0904	....
Do	....	....	....	....	.0906	....
Glauchau	3.79	.087	.00128	.128	....	....
Do	6.95	.106	.00164	.164	....	....

The wages and production of pressers were secured from a larger number of plants and are condensed in the following table:

TABLE 38.—*Pressers' wages in nine dyeing and finishing establishments in the Gera-Greiz region.*

[For the first half of the year 1911.]

Establishment No.—	Locality.	Number of pressers.	Wages per operative per hour.	Yards per operative per hour.	Wages per 100 yards.			
					Plain goods.	Simple fold goods.	Book fold goods.	Samples.
1	Gera	24	$0.1096	149.64	$0.061	$0.1210	....	$0.110
2	....do	5	.1155	146.14	.063	.1260	....	....
3	Glauchau	10	.0932	146.88	.054	.1087	$0.0724	.1087
4	....do	6	.0713	105.34	.054	.1087	.0724	....
5	Weida	4	.1393	215.79	.054	....	.0724	....
6	Mylau[1]	12	.0765	390.84	.039	.0782	....	....
7	Greiz	9	.0881	149.19	.054	.1087	.0724	.1087
8	Meerane	29	.1011	94.10	.054	.1631	.0724	.1087
9	....do	38	.0833	81.42	....	....	....	....

[1] The mill at Mylau clearly does a grade of work differing from that of the other mills, its output per operative per hour being 390.84 yards, whereas in one of the Glauchau establishments the output per operative per hour is 105.34 yards.

Data were secured covering wages and the hours of labor of fullers, teaslers, and their helpers, shearers, and other labor in the finishing departments of 31 establishments in and near Crimmitschau. A tabulation of these data follows:

TABLE 39.—*Weekly wages of finishers, by specified, occupations, in 31 establishments in Crimmitschau, Germany.*

Establishment number.	Hours per day.	Fullers.	Fullers' helpers.	Teazlers.	Teazlers' helpers.	Other laborers.	Piece shearers.
1	10¾	$5.95	$3.93	$4.52	$4.04	$3.09	$2.38
2	11	5.47	3.33	4.76	2.86	2.38	2.86
3	10¾	4.52	2.86	3.93	3.09	2.63	2.73
4	[1] 10½	5.58	3.69	5.02	[2] 3.99	3.54	2.73
5	10¾	4.56	2.92	4.55	3.33	2.86	2.72
6	10½	4.76	3.81	4.64	3.74	3.45	2.86
7	10½	5.00	3.09	4.28	3.57	[3] 3.09	2.38
8	10½	5.24	3.81	5.24	3.09	4.28	2.86
9	10½	4.04	3.33	....	3.57	3.45	2.38
10	10½	5.24	....	4.28	....	3.93	2.62
11	10½	5.00	3.21	4.28	3.23	2.86	2.55
12	10½	....	....	4.76	3.33	2.38	....
13	10½	5.24	3.45	5.24	....	3.86	2.86
14	10½	5.47	3.09	5.47	3.09	3.09	2.56
15	10½	5.47	4.28	3.81	3.33	3.09	2.62
16	11	4.52	....	....	....	....	2.38
17	10½	5.24	3.33	5.00	3.93	3.81	2.50
18	10½	5.00	3.33	4.28	3.09	3.09	2.38
19	10½	5.24	3.33	5.00	3.33	4.04	3.21
20	10½	4.76	....	4.28	3.57	2.86	2.86
21	10½	5.95	3.66	[4] 4.64	3.81	4.28	2.70
22	10½	5.00	....	4.64	3.33	....	2.62
23	10½	4.87	....	3.54	2.94	[5] 2.97	2.40
24	10½	5.47	3.69	4.04	3.21	3.69	3.21
25	10½	5.00	....	4.04	3.57	2.86	3.09
26	10½	5.00	3.33	4.28	3.33	[6] 3.09	2.62
27	10¾	5.38	3.33	4.88	3.09	....	2.86
28	10½	5.24	3.33	4.88	....	4.04	2.86
29	11	5.47	3.33	4.64	3.21	3.45	2.74
30	10½	5.71	3.33	4.04	3.63	3.57	2.62
31	10¾	5.71	3.93	4.04	....	4.28	2.62

[1] The number of hours worked is 9½ on Saturday.

[2] Minors receive $2.62 per week.

[3] Pressers receive $3.09 per week; drying machine operatives, $2.86 per week.

[4] Wet teazlers receive $4.28 to $4.52 per week; acid mixers and carbonizers receive $4.52 per week.

[5] Female piece burlers receive $2.31 per week.

[6] Pressers' assistants receive $3.58 per week.

The principal dyeing and finishing establishments located in the Gera-Greiz region belong to an employers' association (Verband Sachsisch-Thuringischer Färbereien) for the promotion and defense of their industrial interests.

It is customary in these establishments to divide the employees in three groups of occupations. One group comprises all processes preparatory to finishing or dyeing; another group includes those directly connected with wool dyeing; and the third group embraces all those required to finish the goods.

The following table indicates for the different sections of each of the 25 dyeing and finishing mills in this region the number of hours worked per week, excluding pauses, the highest and lowest weekly wages for full-time male and female operatives during the first three months of 1911, and the rate per hour paid overtime work.

TABLE 40.—*Wages for time workers in the employ of 25 establishments belonging to the Saxon-Thuringian Master Dyers' Association.*

[As reported for the first three months of 1911.]

PROCESSES PRELIMINARY TO FINISHING.

Establishment No.	Locality.	Hours per week.		Weekly wages.				Hourly overtime rate.			
		Males.	Females.	Highest.		Lowest.		Males.		Females.	
				Males.	Females.	Males.	Females.	From—	To—	From—	To—
								Cents.	*Cents.*	*Cents.*	*Cents.*
1	Gera	62	58	$3.71	$2.43	$3.57	$2.43	7.6	7.9	....	5.5
2	do	62	57½	4.28	2.28	3.71	2.14	7.6	8.3	4.5	4.8
3	do	59	58	3.81	2.14	3.81	2.14	....	7.5	....	4.5
4	do	59½	59½	3.57	2.14	3.43	2.14	7.1	7.9	....	4.3
5	do	60	57½	4.00	2.14	3.57	2.14	7.1	7.9	....	4.8
6	do	59	58	4.76	2.57	3.57	2.14	7.9	9.8	5.5	6.2
7	Glauchau	62	....	4.20	....	4.20	....	....	9.5	....	....
8	do	62	....	4.28	....	3.71	....	7.1	8.1	....	....
9	do	62	58½	5.00	2.28	3.71	2.28	7.4	9.3	....	4.8
10	do	62	....	4.14	....	3.81	....	6.9	9.0	....	....
12	Greiz	62	57½	3.57	2.28	3.51	2.14	6.9	8.3	4.8	6.2
13	do	62	57½	3.78	2.14	3.57	2.14	....	....	....	....
14	do	62	57½	3.86	2.57	3.28	2.28	7.4	9.0	5.7	7.1
15	Meerane	61	57½	4.14	2.86	3.14	2.43	7.9	11.2	5.9	6.7
16	do	62	58	4.57	2.14	3.14	2.14	7.1	11.7	5.5	7.9
17	Mohlsdorf	62	58	4.28	2.71	3.71	2.57	6.4	7.9	4.8	5.5
18	Mylau	66	....	3.78	....	3.78	....	....	9.3	....	....
20	Netzschkau	65	....	3.50	....	3.50	....	....	5.9	....	....
21	Reichenbach	65	58	4.21	2.64	3.78	2.64	6.2	7.4	4.6	5.1
22	do	63	58	5.00	2.43	3.57	2.43	6.9	9.0	....	5.9
23	do	65	58	5.71	2.36	3.00	2.36	5.9	10.2	....	4.8
24	Weida	63	....	3.57	....	3.57	....	....	6.9	....	....

TABLE 40.—*Wages for time workers in the employ of 25 establishments belonging to the Saxon-Thuringian Master Dyers' Association*—Continued.

WOOL DYEING (MALES ONLY).

Establishment No.—	Locality.	Hours per week.	Weekly wages.		Hourly overtime rate.	
			Highest.	Lowest.	From—	To—
					Cents.	*Cents.*
1	Gera	62½	$3.93	$3.57	7.6	8.3
2	....do	62	4.43	3.71	7.4	8.6
3	....do	58½	3.81	3.81	....	....
4	....do	59½	3.71	3.50	....	....
5	....do	59½	4.14	3.57	7.6	8.7
6	....do	59	4.28	3.78	....	....
7	Glauchau	62	4.00	4.00	8.1	8.1
8	....do	62	4.23	3.57	6.9	9.0
9	....do	62	4.57	3.71	8.1	9.5
10	....do	62	4.00	3.14	5.7	8.8
11	....do	62	3.87	3.71	6.9	8.8
12	Greiz	65	3.75	3.00	7.4	8.6
13	....do	62	3.78	3.43	9.0	9.5
14	....do	59	3.86	3.57	6.7	8.1
15	Meerane	62	4.28	3.00	7.1	10.7
16	....do	62	4.00	3.14	7.9	10.7
17	Mohlsdorf	62	3.43	3.43	6.4	6.4
18	Mylau	66	3.78	3.57	9.0	9.4
21	Reichenbach	66	4.21	3.64	5.9	7.6
22	....do	66	4.21	3.14	5.5	7.6
23	....do	66	3.78	3.43	....	....
24	Weida	63	4.20	3.14	6.2	7.6
25	Gossnitz	62	4.05	3.86	9.0	9.5

FINISHING.

Establishment No.—	Locality.	Hours per week.		Weekly wages.				Hourly overtime rate.			
				Highest.		Lowest.		Males.		Females.	
		Males.	Females.	Males.	Females.	Males.	Females.	From—	To—	From—	To—
								Cents.	*Cents.*	*Cents.*	*Cents.*
1	Gera	62	....	$4.28	....	$3.57	....	6.7	9.0	....	....
2	....do	62	57½	4.86	$2.50	3.71	$2.00	7.6	8.8	4.0	5.4
3	....do	58	58	3.81	2.38	3.81	2.38	7.8	7.8	4.9	4.9
4	....do	59½	57½	4.71	2.28	3.57	2.14	6.4	9.0	4.0	4.5
5	....do	60	57½	4.14	2.28	3.57	2.14	7.6	8.6	4.7	5.0
6	....do	59	58	5.71	2.62	3.57	2.14	....	....	....	....
7	Glauchau	62	58½	5.21	2.28	3.71	2.28	7.4	9.8	4.7	4.7
8	....do	62	58	4.46	2.36	3.85	2.28	8.3	9.8	4.7	4.7
9	....do	62	57½	4.76	2.43	3.78	2.28	7.9	9.5	4.7	5.0
10	....do	62	58½	4.22	2.28	3.78	2.14	6.9	9.2	4.5	5.0
11	....do	62	58½	4.57	2.43	3.78	2.28	8.1	9.8	4.5	5.0
12	Greiz	62	57½	3.78	2.48	3.57	2.14	6.9	8.0	4.7	5.9
13	....do	59	57½	4.04	2.57	4.04	2.14	9.3	9.3	3.8	4.5
14	....do	59	57½	4.14	2.57	3.43	2.00	6.9	8.8	3.4	5.7
15	Meerane	60½	57½	5.12	2.85	4.14	2.43	8.0	10.7	5.9	6.7
16	....do	60½	58	4.50	2.36	3.57	2.14	7.6	10.9	5.9	6.8
17	Mohlsdorf	60½	....	4.28	....	3.43	....	6.7	8.6	....	....
18	Mylau	66	....	4.22	....	3.78	....	8.0	9.5	....	....
19	....do	66	57½	4.71	2.50	4.50	2.50	7.1	7.4	4.4	4.4
20	Netzschkau	65	....	4.00	....	3.93	....	7.1	7.3	....	....
21	Reichenbach	65	....	5.93	....	3.17	....	6.7	10.5	....	....
22	....do	61½	58	3.85	2.64	3.00	2.43	5.5	7.1	4.3	5.0
23	....do	65	58	4.43	2.57	3.43	2.28	6.4	7.9	4.3	5.2
24	Weida	60	57½	4.00	2.57	2.86	2.28	5.0	7.1	4.0	4.7
25	Gossnitz	61	....	....	2.36	....	2.36	....	....	5.9	5.9

The dyeing and finishing establishments belonging to the above-named association of employers have a total of 7,173 operatives, of whom 4,949 are males and 2,224 are females. Table 40 is based upon data from 1,558, or 21.7 per cent of the total number of operatives in these establishments. The table clearly indicates that wages do not vary greatly from plant to plant within the area concerned. The weekly earnings of male laborers range from $3 to $5.93; those of female operatives range from $2 to $2.86. The hourly wages of males, working 62 hours per week, generally range from 5½ cents (23 pfennigs) to 6.42 cents (27 pfennigs); whereas the rate per hour for females, working 58 hours per week, ranges as a rule from 3.45 cents (14½ pfennigs) to 3.93 cents (16½ pfennigs). Somewhat higher wages—of $4.05 (17 marks) to $5.71 (24 marks) per week—are paid only to first hands and to more experienced operatives.

Since 1905 there has been an agreement among the members of the association to pay a minimum weekly wage of $3.45 (14.49 marks) to male operatives, and of $1.90 (8 marks) to female operatives. This minimum wage, however, does not apply to employees who have been in the business less than six months; for such operatives the minimum wage is 10 per cent less.

NOTE.—The wage agreement between the German Textile Workers Association and the Association of Yarn Dyers and Finishers in Glauchau, Meerane, and environs, was renewed in September, 1911, with certain modifications. The principal modifications in the agreement are as follows:

The minimum wage per hour for finishers shall amount, after April 1, 1912, to 34 to 36 pfennigs; for helpers in scouring and finishing, 30½ pfennigs; for operatives in hand dyeing establishments, 32 pfennigs; for silk-dyeing operatives, 30 to 32 pfennigs; and for female operatives in all branches, 17½ pfennigs. On the 1st of October, 1911, the wages of operatives in yarn-dyeing mills were increased 2 pfennigs per hour, and on the 1st of April, 1912, they shall be increased an additional pfennig. From the 1st of January, 1912, operatives in finishing mills or departments will receive 2 pfennigs more per hour, and from April 1, 1912, one pfennig more per hour. Female operatives in yarn-dyeing works shall receive from the 1st of October, 1911, 1 pfennig additional per hour, and female operatives in finishing works shall receive from the 1st of January, 1912, one pfennig more per hour.

In three establishments in Reichenbach doing both dyeing and finishing, wages were increased in August, 1911, as a result of a strike, so that employees previously receiving 2.90 marks (69 cents) per day were raised to 3.10 marks (73.8 cents); those receiving 2.80 marks (66.6 cents) were raised to 2.90 marks (69 cents); those receiving 2.65 marks (63.1 cents) were raised to 2.80 marks (66.6 cents); and those receiving 2.50 marks (59.5 cents) were raised to 2.70 marks (64.3 cents). The wages of pressers were at that time raised from 2.70 marks (64.3 cents) to 3 marks (71.4 cents), and their helpers over 18 years of age were raised from 2.65 marks (63.1 cents) to 2.80 marks (66.6 cents) per day. The daily wage of dye hands was increased from 2.65 marks (63.1 cents) per day to 2.80 marks (66.6 cents), and beginners in this branch over 18 years were raised from 2.50 marks to 2.65 marks (59.5 to 63.1 cents). Other laborers received increases either of 5 pfennigs (1.2 cents) or 10 pfennigs (2.4 cents) per day.

As 214 out of 258, or nearly 81 per cent of the male employees of these three establishments, had been receiving between 2.50 marks and 2.80 marks, or between 59.5 cents and 66.6 a day, this increase raised the wages of that proportion of the employees from 59.5 cents to 64.3 cents, and from 66.6 cents to 69 cents a day. Before the disturbance in August, 65 per cent of the female employees in the three establishments had received 40.5 cents a day. This was increased to 43 cents.

The working hours in the dyeing and finishing establishments of Reichenbach, in fact throughout the Gera-Greiz region, are from 6 a. m. to 7 p. m. with two hours out for meals and pauses, Saturdays from 6 a. m. to 6 p. m. with two hours off. That is, the actual working hours are 11 hours per day for 5 days in the week, and 10 hours on Saturday, or 65 hours per week. For female operatives the hours are from 6 a. m. to 6 p. m. with two hours off, except Saturday, when they work from 6 a. m. to 4 p. m., with two hours off—a net working week for women of 58 hours.

The wage scale for the dyeing establishments of Elberfeld, Barmen, and Rousdorf provides that apprentices during their first year shall receive 8 marks ($1.90) per week; second year, 12 marks ($2.86); third year, 15 marks ($3.57). Journeymen, second hands, up to 17 years of age receive 22 marks ($5.24) per week; from 18 to 21 years of age, 24 marks ($5.71); and above 21 years of age, 26 marks ($6.19) per week. The hours of labor are 56 per week.

The wage scale for Crefelds dyeing and finishing establishments provides:

	Daily.	Weekly.
Apprentices:	*Marks.*	*Marks.*
First year	1.00 ($0.238)	6.00 ($1.43)
Second year	1.50 ($0.357)	9.00 ($2.14)
Third year	2.16 ($0.514)	13.00 ($3.09)
Female apprentices:		
First year	.83 ($0.198)	5.00 ($1.19)
Second year	1.33 ($0.317)	8.00 ($1.90)
Third year	1.83 ($0.436)	11.00 ($2.62)
Females under 19 years	2.16 ($0.514)	13.00 ($3.09)
Females above 19 years	2.50 ($0.595)	15.00 ($3.57)
Journeymen:		
Under 19	3.09 ($0.735)	18.50 ($4.40)
Under 21	3.50 ($0.833)	21.60 ($5.00)
Under 24	3.91 ($0.931)	24.00 ($5.71)
Skilled dyers:		
From 17 to 18 years	3.33 ($0.793)	20.00 ($4.76)
From 18 to 19 years	3.50 ($0.833)	21.00 ($5.00)
From 19 to 20 years	3.83 ($0.912)	23.00 ($5.47)
From 20 to 21 years	4.00 ($0.952)	24.00 ($5.71)
From 21 to 23 years	4.16 ($0.990)	25.00 ($5.95)
From 23 to 25 years	4.33 ($1.030)	26.00 ($6.19)
Above 25 years	4.66 ($1.109)	28.00 ($6.66)
Second hands:		
First year	3.00 ($0.714)	18.00 ($4.28)
Second year	3.33 ($0.793)	20.00 ($4.76)

Night work, 2 marks ($0.476) more per week on all grades. Overtime work: Skilled dyers, 60 pfennigs per hour; journeymen, 50 pfennigs; apprentices, 30 pfennigs; female apprentices, 25 pfennigs; girls, 35 pfennigs. Sunday work, 10 pfennigs more than scale for other overtime. Daily hours, 10.

Females under 19 receive 2.16 marks ($0.514) per day, or 13 marks ($3.09) per week; over 19 years of age, 2.50 marks per day, or 15 marks ($3.57) per week. First-year male apprentices receive 1 mark a day, 6 marks ($1.43) per week; second-year receive 9 marks ($2.14) per week, and third-year 13 marks ($3.09) per week. Female apprentices, first year, receive 5 marks a week ($1.19); second year 8 marks ($1.90), and third year 11 marks ($2.62) a week.

DYEING AND FINISHING IN AUSTRIA.

In Austria, as elsewhere in Europe, the dyeing of wool, yarns, and cloths is done mostly in dyeing and finishing establishments, although some cloth-producing plants have their own dyehouses. The rates of wages given below for dyehouse labor are for both kinds of establishments and include (*a*) 13 cloth establishments which do their own dyeing, (*b*) a combination of 7 dyeing establishments, (*c*) a larger combination of dyeing establishments, of which the 13 included here dye wool or woolen yarns and cloth, and (*d*) the Association of Austrian Silk Dyers. None of these 4 groups can be considered as typical in the matter of rates paid, their rates differing too widely, and their reports not showing distinct and separate dyehouse occupations.

In the 13 cloth-producing establishments which do their own dyeing, the rates of pay for dyers and dyers' helpers range from 45 cents to 49 cents per day. A few establishments paid a rate as high as 60 cents per day, and one paid a rate as low as 43 cents per day, but those rates are for individual persons and no doubt for particular reasons. These dyers and dyers' helpers are not the chemists or color mixers whose knowledge must be technical, but rather the manual workers at the vats who combine with their physical labor a certain degree of skill in handling, and of knowledge of just how the dye is taking effect and what subsequent treatment the dyed wool, or yarn, or cloth must undergo. It is in this sense also that the term "dyer" is used throughout in connection with the rates of pay.

In the second group, comprising the seven separate dyeing establishments, the lowest pay for dyers during the first half year of their employment is fixed at $3.45 per week, or about 57 cents per day. In the second half year of their employment their lowest pay is fixed at $3.65 per week, or 61 cents per day, and after one and a half years at $3.86 per week, or 64 cents per day. Working up through the same terms of employment, females begin at $1.83 per week, or 30 cents per day, and reach at length $2.23 per week, or 37 cents per day.

The third and fourth groups mentioned above are more nearly alike in the rates paid and in their division of the dyers and their helpers into wage groups. Both groups of establishments fix $4.67 per week, or 78 cents per day, as the lowest amount that may be paid to skilled dyers during the first year after the completion of their apprenticeship, and $5.08 and $5.48 per week, or 85 cents and 91 cents per day, respectively, as the lowest rate for them during the second year after finishing their apprenticeship. Independent dyers over 21 years old, whose qualification as dyers and whose being employed as such are certified to by the establishment employing them, receive from $5.48 per week to $5.89 per week as a lowest wage rate. To dyers who change from cotton to silk, or silk to wool, or cotton to wool dyeing, these two groups of establishments pay from $4.87 to $5.48 per week, making the increase in rate effective after the third month's employment in the new kind of dyeing. Both groups distinguish between the dyers and helpers at the dye vats, and pay the latter $4.26 or $4.47 per week. The number of dye-vat helpers is restricted in these two groups of establishments to from 20 per cent to 25 per cent of the number of experienced dyers, and if that percentage is exceeded they must pay the dye-vat helpers the lowest rate paid to the experienced dyers. Females after one and a half years' experience are paid $2.44, and after three years $2.64 or $2.84 per week, or 47 cents per day.

Rates paid for the various occupations in the finishing rooms in Austria have been tabulated and are presented below in Table 41.

The 13 establishments reporting rates for burlers showed that the average rate for burlers was about 31 cents per day. Several establishments paid burlers upon the basis of from 4.1 cents to 9.1 cents per cut of different lengths, and fixed a limit of $2.03 per week as a guaranteed lowest wage for the burler. All burlers were females. The menders' rates for time work averaged somewhat higher, about 38 cents per day, and with these are included the piece-rate burlers who work under a guaranteed minimal pay.

In the finishing department the cloth washers were males, their reported rates averaging 46.3 cents per day. The lowest rate paid for this work was 39 cents per day, and the highest was 52 cents. Cloth driers, cloth carriers, gig tenders, fullers, felters, and cloth dressers—all males—were paid about the same rates as cloth washers; if anything a little less than cloth dressers. Press tenders' wages were higher, averaging about 50 cents per day. The shearing-machine tenders' rates of pay, as reported for 13 establishments, ranged from 26 cents per day to 37 cents per day. Nine of the 13 establishments employed females at the shearing machines, and in this occupation at least the males had no advantage in the matter of wage rates.

TABLE 41.—*Rates of pay for occupations in the finishing departments of Austrian establishments.*

Establishment No.	Occupation, rank, and experience of employees, or kind of work for which they were paid.	Sex.	Rates of pay.	
			Unit of pay.	Rate per unit.
12	Burlers	Females	Per day	$0.34
13	do	do	Per cut	.041
14	do	do	Per day	.34
15	do	do	do	.34
16	do	do	do	.168 to .34
17	do	do	do	.33
19	do	do	Per cut	.061 to .091
			Per day	.34
20	do	do	do	.34
21	Burlers on finished cloth	do	Per cut	.061 to .071
23	Burlers	do	Per day	.233
	Burlers on finished goods	do	Per 109 yards	.061
25	Burlers	do	Per day	.31 to .33
27	do	do	do	.26 to .37
28	do	do	do	.35
10	Menders, skilled	do	do	.33 to .47
11	Menders	do	do	.25
12	do	do	do	.39
13	Menders working on piece rate, but guaranteed $0.39 per day.	do	Per cut	.081
14	Menders	do	Per day	.43
16	Menders working on piece rate, but guaranteed $0.24 per day.	do	Per cut	.057
17	Menders working on piece rate, but guaranteed $0.37 per day.	do	do	.071
19	Menders working on piece rate, but guaranteed $0.39 per day.	do	do	.061
20	Menders working on piece rate, but guaranteed $0.37 to $0.41 per day.	do	do	.041
21	Menders working on piece rate, but guaranteed $0.34 per day.	do	do	.041
22	Menders on summer goods	do	do	.31
	Menders on winter goods	do	do	.41
23	Menders working on piece rate, but guaranteed $0.41 per day.	do	do	.03
27	Menders	do	Per day	.51
10	Cloth carriers	Males	do	.45
13	do	do	do	.45

TABLE 41.—*Rates of pay for occupations in the finishing departments of Austrian establishments*—Continued.

Establishment No.	Occupation, rank, and experience of employees, or kind of work for which they were paid.	Sex.	Rates of pay.	
			Unit of pay.	Rate per unit.
10	Cloth washers	Males	Per day	$0.49
12	....do	..do	....do	.39 to .50
13	....do	..do	....do	.45
14	....do	..do	....do	.43 to .52
15	....do	..do	....do	.47
16	....do	..do	....do	45 to .51
17	....do	..do	....do	.47
19	....do	..do	....do	.45
20	....do	..do	....do	.45
21	....do	..do	....do	.47
10	Gig tenders	..do	....do	.42 to .49
12	....do	..do	....do	.39 to .50
13	....do	..do	....do	.51
14	....do	..do	....do	.38 to .57
16	....do	..do	....do	.49
19	....do	..do	....do	.49
20	....do	..do	....do	.51
21	....do	..do	....do	.47
10	Fullers	..do	....do	.47 to .53
12	....do	..do	....do	.39 to .50
13	....do	..do	....do	.45
17	....do	..do	....do	.47
27	....do	..do	....do	.43 to .53
12	Felters	..do	....do	.43 to .45
10	Cloth driers	..do	....do	.47
13	....do	..do	....do	.45
17	....do	..do	....do	.47 to .49
24	....do	..do	....do	.47
27	....do	..do	....do	.43
24	Cloth drier's helpers	..do	....do	.31
23	Cloth dressers, skilled	..do	....do	.45 to .47
10	Shearing-machine tenders, beginners	Females	....do	.33
	Shearing-machine tenders, skilled	..do	....do	.37
11	Shearing-machine tenders	Males	....do	.35 to .37
12	....do	Females	....do	.36
13	....do	..do	....do	.37
14	....do	Males	....do	.37
16	....do	Females	....do	.37
17	....do	..do	....do	.37
18	....do	..do	....do	.37
19	Shearing-machine tenders, beginners	..do	....do	.33
	Shearing-machine tenders, skilled	..do	....do	.37
20	Shearing-machine tenders	..do	....do	.37
23	....do	..do	....do	.37
25	....do	Males	....do	.26 to .35
27	....do	..do	....do	.26 to .37
11	Press tenders	..do	....do	.47 to .51
12	....do	..do	....do	.49 to .64
13	Press tenders, roller press	..do	....do	.45
	Press tenders, screw press	..do	....do	.51
14	Press tenders	..do	....do	.49
15	....do	..do	....do	.47
19	....do	..do	....do	.49
20	....do	..do	....do	.51
27	Press tenders, younger workers	..do	....do	.45 to .51
	Press tenders, older workers	..do	....do	.50 to .54

DYEING AND FINISHING IN FRANCE.

Wage scales were secured for a number of dyeing and finishing plants in Roubaix, France. Some of these wage scales go into great detail as to occupations and rates, while others give only the principal occupations. It was found possible to tabulate the principal occupations and group the hourly rates of pay by giving the highest and lowest rate for each. This has been done in preference to reproducing translations of the detailed scales.

Table 42 gives the lowest and highest hourly rate provided for by any scale secured in the occupation named.

The occupations are arranged alphabetically rather than by dyeing and finishing departments, but one at all familiar with the industry will perhaps be better able to locate the desired occupation in that way:

TABLE 42.—*Occupations and rates in dyeing and finishing establishments in Roubaix, France.*

Occupation.	Rates per hour.		Occupation.	Rates per hour.	
	From.	To.		From.	To.
Bale carriers	$0.0724	$0.0772	Perchers		$0.0869
Beetlers	.0820	.0869	Piece arrangers		.0869
Brushers	.0656	.0820	Piece carriers	$0.0724	.0801
Bundlers	.0579	.0643	Piece markers		.0869
Calenderers	.0405	.0714	Pressers	.0676	.0917
Card inserters		.0869	Press-board carriers	.0820	.0849
Card removers		.0869	Press-board inserters	.0724	.0791
Cloth carriers	.0772	.0801	Press-board removers		.0772
Color mixers	.0820	.1340	Press setters		.0917
Crabbers	.0820	.0917	Printing machine operatives		.0820
Dividers		.0869	Packers		.0724
Dryers (cloth)	.0772	.0965	Scalers		.0820
Dryers (wool)	.0579	.0772	Scourers	.0724	.0869
Dyers	.0676	.1340	Sewers	.0762	.0917
Dye testers	.0579	.0772	Shearers	.0540	.0897
Dye-vat hands	.0724	.0772	Singers	.0724	.0917
Embroiderers	.0791	.0820	Sizers	.0724	.0869
Firers	.0579	.0820	Soapers		.0772
Folders	.0627	.0965	Sorters		.0772
Fullers	.0405	.0840	Speckers	.0733	.0917
Gassers		.0869	Stampers		.0897
Glazers		.0579	Tenterers	.0654	.0917
Hydro-extractors		.0820	Unfolders	.0772	.0849
Inspectors	.0772	.0917	Unrollers		.0772
Kier hands	.0772	.0849	Warehousemen	.0670	.0869
Labelers	.0869	.0907	Weighers		.0869
Mangle machine operatives		.0897	Winders		.0772
Mercerizers	.0772	.0946	Whizzers	.0772	.0849
Nappers	.0753	.0772	Wrappers	.0869	.0917

WOOL DYERS' WAGES, VERVIERS, BELGIUM.

The prevailing wage scale for wool dyers in Verviers, Belgium, was obtained, and is here presented.

Occupation.	Wage per hour.	Wage per day.
Dye hands	$0.0579	$0.71
Whizzers	.0598	.73
Washing-machine hands	.0598	.73
Weighers	.0675	.82
Felting-machine hands	.0598	.73
Driers	.0579	.71
Do	.0598	.74

It will be noted that two different rates are given for driers—the lower rate being for those who do not turn out more than 800 kilos per day; the higher rate being paid to those who do turn out more than 800 kilos (1,764 pounds, per day.

The duration of the working day for dyers is from 6 a. m. to 7 p. m., except than on Monday work begins at 7 a. m. The day's wage is as a rule 12 times the rate per hour. This system of payment at the rate of one-twelfth of the daily wage for every hour worked is by no means general in other branches of the industry and is applied in this particular case as the result of a demand of the operatives in this particular branch.

Operatives may take 30 minutes at 8 a. m., 1 hour at noon, and 15 minutes at 4 o'clock. The rest periods in the morning and in the afternoon shall not commence later than 8.15 a. m. and 4.15 p. m., but may otherwise be shifted according to the requirements of the work. The above pauses will be seen to amount to 1 hour and 45 minutes. That is to say, the normal working day amounts to 11¼ hours. If the employer keeps the operatives at work during the mid-day pause, he pays their wages for the entire period of the pause, even though they work only a portion of it.

Extra hours of work shall be paid at a rate 50 per cent higher than the ordinary rate. Should one operative replace another who is to blame for his absence, the 50 per cent increase in the rate shall be taken from the wage of the absent employee. An operative called upon to perform other work than that which he usually performs shall be paid according to the rate paid the worker whose place he takes, except that the wage shall not be modified in case of employment for less than one-half day. Whatever may be the wage, it shall not be reduced. These rates apply only to trained or skilled workers, not to temporary employees or apprentices.

Operatives who work at night shall have a rest period of 15 minutes at 9 o'clock, with 30 minutes at 12 o'clock and 15 minutes at 3 o'clock.

Every half hour of work, or part thereof, shall be paid for as though the half hour had been completed.

The above agreement has not been modified since the time of its adoption; it is, therefore, still in force.

Piece dyers have no wage scale. Their wage per hour varies between 5.2 and 5.8 cents. The dyers of worsted yarn receive from 6.2 to 6.8 cents per hour. The employees of the dyer establishments and dyeing departments of Verviers number about 500.

DYEING AND FINISHING ESTABLISHMENTS IN THE UNITED STATES.

For the most part dyeing and finishing is done by worsted and woolen establishments for themselves. The separate, independent, or public dyeing and finishing establishment is rather exceptional in the United States. There are a few in Philadelphia, where the following rates obtain quite generally in yarn and wool dyeing establishments.

The rates in this table are fairly comparable with those of the foreign countries cited, where separate establishments are the rule. The question of rates of pay by sex will be discussed later.

TABLE 43.—*Hours and rates per hour for dyers in manufacturing and jobbing establishments in Philadelphia, Pa.*

Establishment number.	Manufacturing.		Jobbing.	
	Hours per week.	Rate per hour.	Hours per week.	Rate per hour.
1	54	$0.25	55	$0.218
2	54	.25	60	.20
3	57	.228	58	.218
4	57	.228	60	.217
5	57	.228	60	.217
6	58	.172-.224	60	.217
7	58	.20	60	.20
8	60	.20	60	.217
9	60	.20	60	.20
10	60	.20	60	.20
11	57	.228	58	.224
12	57	.228	60	.217
13	60	.20	58	.224
14	60	.20	60	.20
15	55	.182	60	.217
16	55	.22	60	.20

Table 44, which is a condensation of the general wage tables to be found elsewhere in this report, gives the ranges in hourly rates of pay for the plants from which pay-roll data were secured in the United States. The table gives rates of wages, by sex and by occupations, so far as occupations were designated:

TABLE 44.—*Number of male and female employees in finishing and dyeing departments of woolen or worsted establishments in the United States receiving specified rates of wages per hour, by occupation.*

MALE.

Occupation.	Number of employees receiving each specified rate per hour.						
	Total male.	Under 10 cents.	10 and under 16 cents.	16 and under 20 cents.	20 and under 25 cents.	25 and under 35 cents.	35 cents or over.
FINISHING.							
Overseer	153		1	12	20	61	59
Second hand	91		2	8	36	38	7
Third hand	14			9	4	1	
Section hand	26			12	7	7	
Burler	6		6				
Inspector	124	7	14	15	44	43	1
Washing-machine tender	245	1	214	26	4		
Fulling-machine tender	30		18	10	2		
Crabbing-machine tender	78		67	8	2	1	
Gigging-machine tender	88		85	3			
Drying-machine tender	183	14	152	16	1		
Teasling-machine tender	86		59	23	4		
Brushing-machine tender	65		60	5			
Shearing-machine tender	255	2	103	118	18	14	
Pressing-machine tender	200	1	129	48	7	13	2
Total	1,644	25	910	313	149	178	69
DYEING.							
Overseer	43		1	5	1	4	32
Second hand	34			8	11	9	6
Third hand	4			3	1		
Section hand	20			8	9	3	
Dyehouse hand	690		489	177	16	6	2
Total	791		490	201	38	22	40

TABLE 44.—*Number of male and female employees in finishing and dyeing departments of woolen or worsted establishments in the United States receiving specified rates of wages per hour, by occupation*—Continued.

FEMALE.

Occupation.	Total female.	Number of employees receiving each specified rate per hour.					
		Under 6 cents.	6 and under 10 cents.	10 and under 16 cents.	16 and under 20 cents.	20 and under 25 cents.	25 cents or over.
FINISHING.							
Overseer	21			13	6		2
Second hand	3			1	1		1
Burler	1,358	27	253	874	171	30	3
Mender	1,375		74	546	410	256	89
Inspector	95		4	38	32	21	
Drying-machine tender	4			2	2		
Brushing-machine tender	1			1			
Shearing-machine tender	24		5	18	1		
Pressing-machine tender	5		1	4			
Total	2,886	27	337	1,497	623	307	95

In Table 45 the rates paid in the various occupations connected with dyeing and finishing have been brought together in one table for all the countries discussed and for all the occupations which could be clearly identified as comparable.

This table is to be studied for occupational wages and for these only. If teasling machines are operated only by men in the United States, and this is the case, and by both women and men in Germany or Austria, then this table will show the wages paid to women in one case and men in the other. And that is precisely what happens in this occupation of "teasler."

It has at all times and in all investigations been very hard to separate purely industrial and economic data from data more or less interwoven with sociological and labor problems. There has always been a sex element in wage rates, and wage investigations have sometimes sacrificed economic exactitude to this element. For purposes of studying cost of production as an economic or as a tariff proposition it does not matter whether wool is sorted by a man or a woman, or whether a teasling machine is run by a man or by a woman; the cost of sorting wool per pound is the economic fact, the wages paid for the work regardless of the sex of the one to whom it is paid. So in teasling or napping the cloth in a finishing department, the machine does the work, the wages paid to the machine attendant is the economic fact; the sex of the operator may be of interest in connection with the wage rate to those who are studying wages socially, but from a tariff point of view there is no objection to studying wage rates in occupations irrespective of sex; in fact, the objection is to sacrificing economic fact to any other consideration no matter how thoroughly embedded in our statistical methods.

The occupational wages, then, in the following table are for those who do identical work in the various countries, regardless of age or sex.

TABLE 45.—*Rates of wages in specified occupations in dyeing and finishing establishments in the United States, England, France, Germany, and Austria.*

Occupation.	United States.				England.					
	Establishment I.		Establishment II.		Establishment I.		Establishment II.		Establishment III.	
	Range in hourly rates—		Range in hourly rates—		Range in hourly rates—		Range in hourly rates—		Range in hourly rates—	
	From—	To—	From—	To—	From—	To—	From—	To—	From—	To—
Dyeing department:										
Dyers	$0.1750	$0.225	$0.167	$0.20	$0.0521	$0.1302	$0.1130	$0.1173	$0.0869	$0.1130
Dryers [1]		.175			.0911	.1389		.1130		.1217
Stitchers			.109	.192	.0564	.1129				
Tenterers			.092	.10	.0521	.1302	.0872	.1217		
Foreman tenterer				.225		.1389				
Finishing department:										
Brushers			.1080	.1667	.1129	.1259				
Crabbers	.1750	.2167	.1667	.1830	.0780	.1302	.1130	.1173	.1130	.1217
Foreman crabber				.30		.1345				
Folders	.1417	.1500			.0564	.1302		.1130	.0869	.1130
Measurers		.1833		.0833	.0521	.1302				
Menders	.1500	.1833		.1667	.0607	.1214				.0872
Nappers		.1750	.1420	.1833	.0998	.1129	.0999	.1130		.1130
Examiners [2]	.1917	.2083	.1833	.250	.1041	.1302		.1130		
Pressers	.1667	.2083	.1333	.200	.0564	.1171				
Scourers	.1417	.1500	.1667	.2167	.1129	.1345		.1130		.1130
Shearers	.1750	.2333	.1833	.200	.1041	.1171				.1130
Fullers	.1543	.200	.1833	.2167		.1129				

Occupation.	France.						Germany.[3]		Austria.	
	Establishment I.		Establishment II.		Establishment III.					
	Range in hourly rates—		Range in hourly rates—		Range in hourly rates—		Range in hourly rates—		Range in hourly rates—	
	From—	To—	From—	To—	From—	To—	From—	To—	From—	To—
Dyeing department:										
Dyers			$0.0820	$0.1013	$0.0772	$0.0917	$0.0548	$0.0794	$0.0305	$0.0980
Dryers [1]			.0772	.0840	.0800	.0965	[4] .0808	[4] .1640	.0305	.0487
Stitchers				.0762		.0772				
Tenterers		$0.0820	.0645	.0800	.772	.0917				
Finishing department:										
Brushers	$0.0724	.0820		.0656		.0820				
Crabbers		.0820		.0820	.0820	.0917				
Folders	.0724	.0917	.0627	.0830	.0647	.0965				
Measurers						.0869				
Menders		.0820	.0762	.0840	.0869	.0917	[5] .0460	[5] .0900	.0162	.0508
Nappers		.0772	.0753	.0772		.0772	.0549	.0848	.0392	.0568
Examiners [2]	.0772	.0917			.0772	.0897				
Pressers	.0724	.0917	.0676	.0907	.0800	.0965	[4] .0632	[4] .1080	.0447	.0644
Scourers		.0772	.0724	.0820	.0772	.0869			.0392	.0518
Shearers	.0772	.0917	.0540	.0724	.0608	.0897	.0361	.0510	.0264	.0371
Fullers			.0405	.0840		.0820	.0641	.0944	.0392	.0528

[1] Threw all dryers into dyeing department.

[2] Threw all examiners and overlookers into finishing department.

[3] Crimmitschau district, except as noted—"[4]" and "[5]."

[4] Gera district.

[5] Luckenwalde.

COMPARATIVE WAGES AND HOURS OF LABOR; VARIOUS OCCUPATIONS.

Wage data were secured for a large number of occupations from the various countries visited, in connection with the manufacture of woolen and worsted goods. A mass of such wage data secured from various German sources has not been used for lack of time. Such material as was secured directly and at first hand by the agents of the Tariff Board has been used.

Below is presented this miscellaneous wage material, first for England, in which case time was had to make comparison of rates of pay in specific occupations. The difficulty of identifying occupational names in foreign mills with the same work here is not so great in the case of England as on the Continent, hence a comparative presentation could be more quickly made. In cases where occupations could not be identified with a corresponding one here, they were, of course, necessarily thrown out.

This material is presented in the following order: England, Germany, and Austria.

ENGLAND.

VARIATIONS IN EARNINGS BY DISTRICTS IN THE WEST RIDING OF YORKSHIRE, WITH A COMPARISON OF EARNINGS IN THREE DISTRICTS IN THE UNITED STATES.

The agents of the Tariff Board made a special investigation of the earnings and occupations of employees in the woolen and worsted industry in the West Riding of Yorkshire, England. Seventy-two per cent of all persons in the industry are employed in this district. Its chief centers in the West Riding of Yorkshire are Huddersfield (including the Colne and Holme Valleys), Bradford, Leeds, Dewsbury and Batley, Halifax and Keighley. The Huddersfield district mainly produces fancy worsted coatings of the finest quality, and low woolens. At Bradford wool sorting, combing, and worsted spinning are largely carried on as separate industries and worsted yarns are sold there for use at all the other centers of the trade. Bradford is also a large center for the production of alpacas and womens' dress goods. Fancy worsteds for men's wear are also produced there. At Leeds every quality from fine cloths to low woolens are made. The heavy woolen district of Dewsbury and Batley is a rag center, and rag wool pulled at Dewsbury finds its way into every concern in the West Riding where low woolens are made. It also makes pilots, beavers, and blankets, and in recent years it has entered into the production of low woolen costume cloths and men's suitings with great and growing success.

Some worsted and fine and fancy woolen and army cloths are also produced. Halifax and Keighley make a class of goods similar to those manufactured at Bradford.

The different branches of the industry and the variations in the same branches make it difficult to arrive at reliable general averages.

This condition of affairs also in part explains the difference of wages found when one district is compared with another. In weaving, for example, the Huddersfield standard loom is a box loom running normally at 80 or 100 picks per minute, the latter speed an introduction of the past 10 years or so. Of these looms one operative can tend only one. At Bradford in the plain trade the looms are narrower, or 45 to 54 inches in width, the work is woven with one shuttle and the operative tends two looms. On Bradford fancy coatings the loom is wide, there are more shuttles used, and the operatives tend only one loom. The same remarks apply to Halifax and Keighley, while at Leeds there is little, if any, two-loom weaving, and one loom per weaver is also the rule in the heavy woolen district. It is necessary, therefore, to exercise great care in comparing the earnings of weavers in one district with those in another.

The data have been secured from the pay records of representative mills and have been compared with the published returns of the British Board of Trade. (The British Board of Trade returns, showing earnings and occupations for the entire industry in the United Kingdom, including the West Riding of Yorkshire, are printed elsewhere in this report.)

The woolen and worsted industry lacks the standardization which is found in the Lancashire cotton industry. There is no general organization among the operatives and consequently no wage agreements providing for a uniform payment for the same kind of work. As a result earnings within the same branch of the industry vary because of the absence of a common rate of pay for the same class of work. The piece and time rates vary from mill to mill even among those the products of which are identical. In some localities, as in the Huddersfield district, men are paid a higher rate than women, although both are doing the same kind of work.

EARNINGS IN THE DIFFERENT DISTRICTS.

To illustrate these points the following tabulation of the approximate average earnings in a normal week in each district is shown:

Districts.	Woolen weavers (1 loom).			Worsted weavers.					
				1 loom.			2 looms.		
	Men.	Women.	Girls.	Men.	Women.	Girls.	Men.	Women.	Girls.
Huddersfield	$6.68	$4.86	$4.01	$6.56	$4.98				
Heavy woolen	5.47	3.89	3.49	5.47	3.89	$2.92			
Leeds		3.80	3.16		3.89				
Bradford		3.89		4.98	3.28	2.55		$3.52	$2.80
Halifax		3.65			3.41	2.55		3.52	
Keighley					3.53	2.68	$5.11	3.65	3.04

At Halifax there is some two-loom weaving on plain woolens and the earnings are practically the same as those on fancy woolens with one loom only.

In the heavy woolen district weavers earn similar wages on woolens and worsteds.

EARNINGS ACCORDING TO PRINCIPAL DIVISIONS OF THE INDUSTRY.

WOOL SORTING.

The earnings of the operatives may be best presented according to the principal divisions of the industry. Wool sorting, the initial process of manufacture, is usually done in Bradford. Both time-work and piecework are prevalent methods of payment, and there is practically no difference in the weekly earnings, the two methods being adjusted so as to yield practically the same returns. The almost universal superiority of pieceworkers' earnings over those of time-workers in the same occupation holds good here, but not to any great extent. The average weekly earnings are:

Bradford.—Wool sorters: Time-work, $8.28 per week; piecework, $8.52 per week.

The trade-union standard time rate is 8d. ($0.16) per hour for 50 hours, or $8.11 per week, in sorting shops, and $8.03 per week for 55½ hours in mills.

With wool sorters there is a considerable amount of lost time. The earnings are probably higher in a normal week than those of other operatives of similar grade of skill in the worsted industry, because of the uncertainty attaching to their employment. Under active industrial conditions, for the whole year of 50 nominal working weeks, wool sorters will probably not average more than $7.29 to $7.53 per week. During some years the loss will be more and the average 10 to 15 per cent lower. Sorters working in mills do not suffer so much from lost time as do those in separate sorting establishments, and as a consequence, while the wage for a normal week is about the same, the hours worked in mills are longer and the earnings in a year are higher.

WOOL COMBING, BRADFORD.

Bradford is the chief center for wool combing, and, as in the case of sorting, only a small amount is done at other places, except in the few mills which carry on all processes of manufacture. The work is carried on by day and night, women tending the combs by day and men operating them by night. The rates of pay vary, but the following may be taken as representative of the average weekly earnings in the principal occupations of this branch of the industry:

	Earnings per week.
Men day workers:	
Grinders	$7.06
Wool runners, laborers, etc	4.14
Bowl minders (scouring machine tenders)	6.08
Feeders	5.60
Warehousemen	6.08
Men night workers:	
Comb minders (comb tenders)	6.33
Backwashers (backwash tenders)	6.08
Box minders (gill box tenders)	5.84
Jobbers (oiler and machine fixer)	6.08
Feeders	5.84
Runners	5.84
Women day workers:	
Comb minders (comb tenders)	3.41-3.65
Backwashers (backwash tenders)	3.41
Box minders (gill box tenders)	3.16

The Wool-combers Union is now attempting to secure the adoption of a minimum wage of $6.08 for night work.

In some spinning mills, where the firms do their own combing, men comb tenders are employed by day and no night work is done. In such cases the wages are lower, the difference being caused, as in the case of wool-sorters, by the more regular working in mills than in combing sheds. The annual earnings are probably not very dissimilar.

WORSTED SPINNING, BRADFORD.

Unlike wool sorting and wool combing, there is not in worsted spinning any great difference between the rates of wages paid in mills spinning yarn for sale and in those spinning for their own consumption. The work is almost invariably time-work, and very few adult males are employed. Children largely enter the mills as "half-timers," that is, they work for not more than 30 hours per week in the mill, and attend school for one-half of each day.

On commencing mill life, children start as "doffers," or, in other words, they take the full bobbins off the spinning frame and put the empty ones in their place. As they grow older, they go to spinning and then to drawing. There are no recognized rates for these occupations and the averages, per week, for the Bradford district are approximately as follows:

Half-timers	$0.85
Doffers, children, full-timers	1.46
Spinners:	
Girls	2.43
Women	2.68
Lads	2.43
Drawers:	
Girls	2.68
Women	3.16

The "spinners" here referred to are frame or ring spinners and the "drawers" are called "drawing frame tenders" in mills in the United States.

There is, however, a great range, not only from mill to mill, but inside any one single mill. Thus, at one large firm, the drawers receive $2.80 per week and the spinners receive:

For minding—	
1 side of 110 spindles	$2.19
2 sides of 130 spindles	2.31
2 sides of 168 spindles	2.43
2 sides of 220 spindles	2.55
3 sides of 194 spindles	2.61
3 sides of 252 spindles	2.80
3 sides of 330 spindles	3.04

At another large firm the spinners tend 4 sides of 72 spindles each, for a weekly wage of $3.16. At a third firm they receive for three sides of 72 spindles each $2.92, and for 4 sides of 54 spindles each $3.16. As a general rule, however, spinners do not tend more than two sides.

In each of these cases the drawers receive about $0.243 per week more than the average spinner.

Doublers (twisting frame tenders in United States mills) receive about the same as drawers, the averages for the Bradford mills being: For women time-workers $2.80 weekly and for pieceworkers $3.28.

Girl doublers, working on a time basis, are paid a weekly wage of $2.55. Piecework is much more prevalent in doubling than in spinning.

FOREMEN OR OVERLOOKERS.

The wages of overlookers in the Bradford district are subject to wide variations, and approximately average for the different departments as follows:

Foremen:	Weekly earnings.
Sorting department	$8.27
Combing department	8.27–8.76
Spinning department	7.67
Doubling department	8.03
Weaving department	8.52–8.76

In some mills the foremen in charge of the weaving department also receive a bonus on the production of the looms in excess of a specified amount.

WEAVING AND ALLIED OCCUPATIONS, BRADFORD.

In the other departments of the worsted goods manufacturing industry the following are representative weekly-wage averages:

Men:	
Warp dressers, piecework	$8.27
Twisters-in, piecework	7.79
Warehousemen, time-work	5.96
Weavers (worsted coating), piecework [1]	4.99
Women:	
Reelers, time-work	$3.04
Reelers, piecework	3.65
Winders, time-work	2.80
Winders, piecework	2.92
Warpers, time-work	3.41
Warpers, piecework	3.77
Weavers, worsted, 1 loom, piecework	3.28
Weavers, worsted, 2 looms, piecework	3.53
Weavers, woolen, piecework	3.89
Burlers and knotters, time-work	3.53
Burlers and knotters, piecework	3.53
Menders and fine drawers, time-work	3.65
Menders and fine drawers, piecework	3.77
Girls:	
Winders	2.31
Weavers, worsted, 1 loom	2.55
Weavers, worsted, 2 looms	2.68
Burlers and knotters	2.07
Half-time assistants	.91–.97

Averages for weaving, however, as already pointed out, are very unreliable, owing to the great diversity of rates paid and goods woven. Thus, at one mill making mohairs and dress goods the range of weekly earnings per weaver (women) is $3.65 to $3.89. At another, making fancy waistcoating and light fancy coatings, the weekly average is about $5.23, the women earning about $4.87 and the men, of whom only a few are employed, about $5.59. There are very few men weavers in Bradford. At a mill making alpacas, the average weekly wage is about $3.89.

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[1] Very few men weavers are employed. There is a small group of expert pattern weavers on hand looms, earning $5.36 to $7.06 a week and averaging about $6.33 a week for time-work.

WAGES FOR A NORMAL WEEK'S WORK.

Huddersfield district.

Men:	
Foreman—	
Scribbling (carding)	$10.95
Mule spinning	9.00
Weaving	8.52
Wool sorters	6.93
Wool washers	5.60
Fettlers, time (card strippers)	6.52–6.18
Spinners—	
Time	6.33
Piece	7.79
Piecers—	
Daytime	5.12
Night workers	5.84
Scribblers' feeders (card feeders)—	
Day	5.12
Night	5.84–6.33
Warpers	7.30
Beamers	6.45
Twisters-in	6.69
Pattern weavers—	
Time	6.95
Piece	7.79
Weavers—	
Woolen	6.69
Worsted	6.93
Low worsted weavers	6.33
Dyers	5.88
Fullers	5.72–6.08
Dressers—	
Time	3.84–6.33
Piece	7.06–7.30
Warehouseman	6.33
Lads and boys:	
Big piecers	3.65
Little piecers	2.43–2.92
Twisters-in	3.65
Worsted spinners	2.19
Worsted doffers	1.70
Women:	
Scribblers' (card) feeders—	
2 machines	3.65
3 machines	4.38
Combers	2.80
Finishers (combing), (finishing gill-box tenders)	2.68
Drawers (drawing-frame tenders)	2.68
Worsted spinners	2.25
Wool spinners' piecers	3.16
Women:	
Twisters or doublers—	
Time	2.68
Piece	4.14
Reelers—	
Time	2.92
Piece	3.65
Winders—	
Time	2.92
Piece	3.53
Warpers—	
Time	4.01
Piece	4.50
Weavers—	
Woolen	4.86
Worsted	4.86
"Low worsted weavers"	4.26

Women—Continued.	
Burlers—	
Time	$3.16
Piece	4.01
Knotters—	
Time	3.16
Piece	3.65
Menders—	
Time	4.14
Piece	4.74
Girls:	
Worsted spinners	2.07
Wool spinners' piecers	2.80
Winders—	
Time	2.07
Piece	2.55
Weavers, wool and worsted	4.01
Burlers and knotters—	
Time	1.82
Piece	3.16

Leeds district.

Reference has already been made to the wide range of goods manufactured in the Leeds district. These variations account for a similarly wide range of wages. Generally speaking, wages are highest in the fine-cloth mills and lowest where plain woolens are made. The following table shows the wages of the principal classes of operatives in 1911:

	Wages.
Men:	
Foremen—	
Preparing	$12.17
Spinning	8.52
Weaving	8.76
Others	8.52–9.73
Fettlers (card strippers)	7.06
Spinners	7.66–9.49
Warp dressers	6.69
Beamers	6.57
Twisters-in	6.20–6.93
Woolen weavers	5.84
Dyers	6.08
Fullers	6.08–7.54
Dressers, finishers	6.08–8.76
Warehousemen	6.33–6.57
Lads and boys:	
Scribblers' feeders (card feeders)	3.41
Piecers	2.43–2.92
Other lads and boys	2.43–2.92
Women:	
Scribblers' feeders (card feeders)	3.41
Worsted drawers	2.68
Worsted spinners	2.55
Mule piecers	2.43–2.92
Doublers (twisting-frame tenders)	2.55
Winders	2.55
Warpers	3.65–4.38
Weavers, woolen	3.53
Weavers, woolen and worsted	4.14
Burlers and knotters	2.92
Menders and fine drawers	3.89–4.26
Girls:	
Worsted spinners	2.07–2.31
Woolen piecers	1.95–2.31
Winders	2.07
Doublers	2.07
Weavers, woolen	2.80
Burlers and knotters	1.82

The heavy woolen district.

This district is a large one, including Mirfield, Ravensthorpe. Dewsbury, Batley, Birstall, Heckmondwike, and Ossett. The goods extend from very low woolens, cotton warps, and rag-wool wefts to men's wear woolens of good quality, costume cloths, low worsteds, pilots, beavers, as well as rugs and blankets. The average weekly wage payments for this class of work are as follows:

	Average weekly wage.
Foreman, weaving department	$8.27–$9.49
Washers	5.60
Fettlers (card strippers)	6.20
Spinners, mule:	
Time	6.57
Piece	8.52
Piecers:	
Day	4.38
Night	6.08
Warpers	6.57
Beamers	6.33
Weavers, woolen	5.35
Dyers, time	6.08
Fullers:	
Time	6.08
Piece	6.57
Dressers and finishers:	
Time	6.08
Piece	7.30
Warehousemen	5.84
Lads and boys:	
Piecers	3.16
Lads, generally	2.68
Women:	
Scribblers' feeders (card feeders)	3.41
Drawers (drawing-frame tenders)	2.68
Doublers (twisting-frame tenders)—	
Time	2.92
Piece	3.77
Winders, time	2.92– 3.16
Weavers	3.89
Burlers and knotters	3.04–3.28
Menders and fine drawers—	
Time	3.53– 3.77
Piece	3.77– 4.01
Girls:	
Scribblers' feeders (card feeders)	2.92
Worsted spinners (frame)	2.07– 2.19
Woolen piecers	2.43
Winders—	
Time	1.82
Piece	2.31
Doublers	2.07– 2.19
Weavers	2.92
Burlers and knotters	2.55

The following wages were the rates paid in 1909 by a leading firm in Dewsbury.

These wages, which are practically unchanged to-day, may be taken as typical of the rates paid by the best firms. They are above the average of the district in almost every occupation, but the goods manufactured by this firm are also better than the general output. A higher quality of workmanship is therefore needed. Any changes which may have taken place in these rates between 1909 and to-day are practically negligible:

	Average weekly wages.
Rag grinders, men	$6.08
Rag pickers, women	3.16–4.38
Piecers, boys and youths	1.95–3.89
Fettlers (card strippers), men	6.08, 6.33
Beamers, men	6.57
Machine warpers, men	6.69
Loom tuners (loom fixers), men	8.52–9.73
Weavers, women [1]	4.03
Millers (fulling machine tenders), men	6.58, 6.57
Dyers, men	6.33
Raisers (napping machine tenders), men	6.08, 6.33
Pressers:	
Men	6.57
Laborers, men	6.08
Cutters (shearing machine tender):	
Men	6.08
Boys	1.95
Nappers, men	6.08
Fine drawers, men	8.52
Menders, women	3.65
Cutlers (folders), men	6.08
Warehousemen	6.08
Fixers (machine fixers), men	7.30
Mill mechanics, men	8.27–8.88

[1] Average per week over 4 years, including holidays.

Halifax district.

Workers in the woolen trade of Halifax are the worst paid of any in the West Riding of Yorkshire. There may be particular firms which in Halifax pay higher wages than their competitors in other centers, and there may be particular occupations in the trade in which the Halifax operatives earn above the average of the West Riding, but as a generalization the rule holds true that Halifax wages are low as compared with other districts. There is little woolen spinning in Halifax, but in one form or another there is a large amount of woolen weaving. On the other hand, there is a comparatively large amount of worsted spinning. The carpets of Halifax are, of course, its specialty, but the figures submitted below are for the woolen and worsted industries only. These tabulations which immediately follow show the weekly wages for 1911.

Wages in the Halifax district, 1911.

Men:	
Foremen—	
Preparing department (scouring and carding)	$7.91
Spinning department	7.30
Weaving department	5.84
Other departments	7.30–8.27
Wool sorters	7.30
Fettlers (card strippers)	5.60
Woolen mule spinners	4.38–6.33
Twisters-in	7.91
Dressers and finishers	5.60
Fullers (fulling machine tenders)	5.60
Warehousemen	5.60

Lads and boys:	
Worsted—	
Spinners	$2.19
Drawers	2.55
Jobbers	2.07
Doffers	1.70
Wool piecers	2.43–2.68
Half-timers	6.79
Women:	
Scribblers' feeders (card feeders)	3.16
Combers (comb tenders)	3.04
Backwash and gill-box tenders	2.92
Finishers (finishing gill-box tenders)	2.68
Drawers (drawing-frame tenders)	2.92
Spinners (frame)	2.55
Doublers	2.68
Reelers—	
Time	2.80
Piece	3.28
Winders—	
Time	2.55
Piece	3.28
Warpers	3.53
Woolen weavers—	
1 loom	3.65
2 looms	3.77
Worsted weavers—	
1 loom	3.41
2 looms	3.53
Burlers and knotters	3.16
Menders and fine drawers	3.53
Do	3.65–4.14
Girls:	
Worsted spinners (frame)	2.19–2.43
Winders	2.43
Doublers	2.19–2.55

Keighley.

The last district for which reliable data are obtainable is Keighley. This is a worsted-stuff district, and practically no woolen spinning or weaving is carried on. The following are the average weekly wages for 1911, according to occupations:

Men:	
Foremen—	
Preparing department	$7.91
Spinning department	7.06–7.30
Weaving department	7.54
Wool sorters—	
Time	7.30
Piece	7.54–8.03
Washers (scouring-machine tenders)	4.78
Combers (comb tenders)	4.50
Warp dressers, piece	8.27
Twisters-in, piece	7.30
Worsted weavers, 2 looms	5.12
Warehousemen	4.87–5.84
Laborers, generally	4.38–5.12
Lads and boys:	
Worsted—	
Spinners	2.55
Jobbers	2.55
Doffers	2.31
Half-timers	0.93

Women:	
Combers	$3.28
Backwash and box minders	3.16
Finishers (finishing gill-box tenders)	2.92
Drawers (drawing-frame tenders)—	
Time	3.04
Piece	3.41
Worsted spinners (frame)	2.80
Doublers (twisting-frame tenders)—	
Time	2.92
Piece	2.92–3.65
Reelers	3.65
Winders—	
Time	2.92
Piece	3.04
Warpers, time	3.65
Worsted weavers—	
1 loom	3.41
2 looms	3.65
Burlers	3.41–3.65
Menders and fine drawers	4.26
Girls:	
Worsted spinners	2.55
Doublers	2.80
Worsted weavers, 2 looms	3.04
Burlers	3.41
Half-timers	.99

GENERAL.

Some indications of the recent trend of wages in the woolen and worsted trade have already been given. For some years past this movement has been steadily upward. The workers are not generally well organized. The degrees of organization vary from their almost complete inclusion of every man in the trade (in some districts) in their union to the almost complete absence of union members among the worsted spinners and in worsted spinning mills. Where there has been organization, definite advances have been obtained during the past five years. This is notably the case with dyers, wool sorters, and wool combers at Bradford, weavers on 100 pick looms at Huddersfield, willeyers, and fettlers throughout the West Riding, rag pullers, etc., at Ossett, Dewsbury, and elsewhere, and pattern weavers on piecework in the Huddersfield woolen trade. It is also the case at many individual mills with spinners in the heavy woolen district, weavers in Leeds, the heavy woolen district, and in isolated cases elsewhere, warpers in most districts, mule piecers at Huddersfield, Colne Valley, Batley, and other districts.

The whole industry, however, suffers from some notable defects. The entire absence of a single standard of wages for the whole West Riding for any occupation is remarkable. There are weaving lists at Huddersfield and at Quiseley; there is one observed by a group of firms at Batley; there are recognized standards for willeyers and fettlers at Leeds, the heavy woolen district, Yeadon, Quiseley and district, and the Huddersfield district; there is also in the latter district a recognized standard for night piecers, pattern weavers, and dyers and in home dyehouses. This practically completes the list.

Another obvious feature is the low proportion of piecework. In the cotton-goods industry 65.7 per cent of the operatives are on piecework; in the woolen and worsted trade only 37.9 per cent are paid by this method. The proportion in the different districts in the woolen trade varies greatly, as will be seen from the following tabulation:

District.	Timeworkers.	Pieceworkers.
	Per cent.	*Per cent.*
Huddersfield	45.1	50.9
Heavy woolen district	44.1	55.9
Leeds	66.2	33.8
Keighley	66.7	33.3
Bradford	71.9	28.1
Halifax	76.9	23.1
All Yorkshire	61.4	38.6

EARNINGS IN THE LAWRENCE, PROVIDENCE, AND PHILADELPHIA DISTRICT OF THE UNITED STATES.

The wages paid in the woolen and worsted industry in the United States vary widely, as in England, from district to district, from town to town, and from mill to mill. Because of the marked variations, it was thought advisable to show at this point, in tabular form, the range of weekly wages paid in woolen and worsted mills in three of the principal centers of the industry in the United States, though wage data for this country will be given in much fuller detail in Part V. The data have been compiled in Table 46, which follows:

TABLE 46.—*Comparative statement of highest and lowest weekly wages paid in specified occupations in the Philadelphia, Providence, and Lawrence districts.*

Occupation.	Range of weekly earnings in specified occupations in—		
	Philadelphia district.	Providence district.	Lawrence district.
Overseers:[1]			
Scouring	$15.00-$25.00	$17.00-$25.00	$18.00-$25.00
Carding	20.00- 50.00	20.00- 25.00	30.00- 40.00
Combing	20.00- 25.00	24.00- 30.00	36.00- 40.00
Drawing	20.00- 50.00	18.00- 40.00	24.00- 36.00
Frame spinning	20.00- 35.00	18.00- 24.00	35.00- 40.00
Mule spinning (woolen)	20.00- 25.00	15.00- 20.00	40.00- 45.00
Mule spinning (worsted)	20.00- 35.00	15.00- 20.00	20.00- 35.00
Warp dressing	16.00- 20.00	16.00- 30.00	25.00- 30.00
Weaving	20.00- 30.00	25.00- 35.00	35.00- 50.00
Dyeing	40.00- 65.00	35.00- 40.00	40.00- 75.00
Wool sorter	6.50- 17.00	9.00- 14.50	10.00- 16.50
Scouring machine tender	7.00- 12.00	7.50- 11.50	7.00- 11.00
Card feeder	5.50- 9.00	6.00- 8.00	6.00- 8.00
Card stripper	7.00- 11.00	8.00- 9.00	7.50- 9.00
Card tender	5.00- 10.00	6.00- 7.00	6.00- 8.00
Comb tender	5.00- 9.50	7.00- 8.00	7.50- 10.00
Gill box tender	4.50- 9.00	5.50- 8.00	6.00- 9.00
Back-wash tender	5.00- 9.00	7.00- 8.00	6.50- 8.00
Drawing frame tender	4.00- 8.00	5.50- 10.50	6.00- 9.50
Frame spinner	5.00- 7.00	5.50- 7.50	6.50- 8.50
Doffer	4.00- 5.00	4.00- 6.00	5.00- 7.50
Mule spinner (woolen)	10.00- 16.00	9.50- 17.00	11.00- 17.00
Mule spinner (worsted)	10.00- 15.00	....	13.00- 21.00
Twisting frame tender	5.00- 8.50	6.00- 9.00	6.00- 8.00
Reeler (piecework)	9.00- 12.00	10.00- 11.50	....
Reeler (time work)	5.00- 7.50	6.00- 7.00	6.50- 7.50
Warp dresser	11.00- 16.50	14.50- 15.50	13.00- 17.50
Spooler	4.50- 6.00	5.00- 11.00	5.00- 9.00
Drawer-in	10.00- 13.00	9.00- 12.00	6.00- 12.00
Hander-in	3.50- 5.00	4.00- 7.00	4.00- 5.00
Weaver	6.00- 18.00	8.00- 18.00	9.00- 18.00
Burler	4.50- 10.00	6.50- 10.00	6.00- 9.00
Washer tender	7.00- 10.00	8.00- 12.50	7.50- 11.00
Fulling machine tender	7.50- 10.00	8.00- 9.00	8.50- 11.00
Steamer tender	8.00- 9.00	....	7.50- 11.00
Dyer tender	4.50- 11.00	8.00- 11.00	7.00- 9.50
Shearer	6.50- 11.00	8.00- 11.00	7.00- 15.50
Pressing machine tender	6.00- 18.00	8.00- 11.50	7.50- 10.00
Examiner	8.00- 19.00	7.50- 11.50	11.00- 16.00

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[1] Wide variations shown in overseers' earnings are due partly to difference in methods of organization and the fact that in some mills they supervise more than one department.

The districts shown in the above table are the Philadelphia, Lawrence, and Providence districts. These cities, in the order named, are the leading cities in woolen and worsted manufacture in the United States. (See U. S. Census Report on Manufactures: 1905, Part III, p. 88.)

Moreover, near these cities there are a number of localities in which various branches of woolen and worsted manufacture are conducted on a large scale. And in compiling the data for the above table the other localities beside the principal city or center have been considered. Thus for the purposes of the above table the Philadelphia district includes several localities in Pennsylvania near that city as well as several in New Jersey. The Providence district comprises mills not only in Providence but in other localities in Rhode Island and Connecticut, and in the Lawrence district several other towns in Massachusetts are included.

It can not be said so definitely as in the case of England, that any branches of woolen and worsted manufacture is largely concentrated in one or two localities or districts, although in some districts one branch of the industry is conducted on a very extensive scale as, for example, top and yarn making in the Lawrence district. The facts are that in each of the specified districts all branches of the industry are important.

However, it should be said that the ranges of wages are only for the mills investigated by the Tariff Board, and that quite possibly there are other mills in the specified districts in which lower or higher wages are paid than those shown above.

A COMPARISON OF THE EARNINGS OF WOOLEN AND WORSTED OPERATIVES IN THE UNITED STATES AND GREAT BRITAIN.

The data upon which the following comparative table of earnings is based were obtained by agents of the Tariff Board in the United States at woolen and worsted mills in 14 States, including New England, New York, New Jersey, Pennsylvania, Ohio, Indiana, Michigan, Wisconsin, and Kentucky.

The data for Great Britain are those contained in the report of the British Board of Trade on earnings in the textile trade, published in 1909, giving earnings for the year 1906. The agents of the Tariff Board verified the English data and report no material change in the rates.

The board of trade classified the principal occupations and reported the number in each who worked a full-time week with the average earnings of the group in the period. For the purposes of comparison the number of persons employed in the same occupations in the United States, in the total of 35,029 persons for whom rates and earnings were obtained, have been classified in the same manner and the average earnings of each group for a full-time week of 55.6 hours ascertained.

TABLE 47.—*Occupations and weekly full-time earnings in the United States and in Great Britain in the woolen and worsted industry.*

Occupation.	Sex.	Kind of work.	Average full-time earnings of 55.6 hours.				Excess United States over Great Britain.
			United States.		United Kingdom.		
			Number of operatives.	Average weekly earnings.	Number of operatives.	Average weekly earnings.	
							Per ct.
Wool sorter	Male	Time	197	$12.38	516	$7.22	71.5
Do	...do	Piece	273	13.42	598	7.71	74.1
Do	Female	Time	24	9.71			
Do	...do	Piece	14	11.19			
Wool washers, scourers, driers	Male	Time	247	8.21	531	4.93	66.5
Do	...do	Piece			97	6.04	
Card strippers and tenders	...do	Time	393	7.81	772	5.45	43.3
Comb tenders	...do	...do	160	7.85	492	4.26	84.3
Do	Female	...do	110	6.52	810	3.00	117.3
Back wash and gill-box minders	Male	...do	356	6.73			
Do	Female	...do	469	5.84	625	2.83	106.4
Drawing-frame tender	Male	...do	234	6.80			
Do	...do	Piece	9	8.39			
Do	Female	Time	1,384	6.21	2,831	2.68	131.7
Do	...do	Piece	43	6.79	434	3.41	99.1
Wool spinners (mule)	Male	Time	25	10.40	490	5.98	73.9
Do	...do	Piece	393	11.75	406	7.93	48.2
Warp dressers	...do	Time	327	12.94	89	6.53	98.2
Do	...do	Piece	25	14.12	453	7.91	78.5
Worsted-frame spinners	...do	Time	233	7.40			
Do	Female	...do	908	6.40	9,612	2.25	184.4
Do	...do	Piece	58	6.46			
Reelers	...do	Time	86	5.46	297	2.94	85.7
Do	...do	Piece	57	6.93	723	3.56	94.7
Winders	Male	Time	41	7.13			
Do	...do	Piece	27	7.75			
Do	Female	Time	168	5.53	861	2.66	107.9
Do	...do	Piece	314	7.08	1,014	3.35	111.3
Woolen weavers	Male	...do	847	10.63	2,059	6.21	71.2
Do	Female	...do	545	10.54	10,579	3.83	175.2
Worsted weavers	Male	...do	1,400	12.36	928	6.12	102.0
Do	Female	...do	1,782	9.55	8,560	3.59	166.0
Burlers	...do	Time	506	6.15	861	3.20	92.2
Do	...do	Piece	852	7.12	1,065	3.51	102.8
Menders	...do	Time	303	7.77	464	3.63	114.0
Do	...do	Piece	1,072	9.19	1,798	4.30	112.2
General laborers	Male	Time	832	8.21	350	4.74	73.2

Agents of the Tariff Board copied the pay rolls of two mills, one in the United States and one in England, making the same class of goods.

The employees in the English mill were working 55½ hours a week and those in the United States 56 hours. The English rates were raised to a 56-hour basis. The names of the occupations are those in the English mills.

This comparison is given as of interest because the two mills were of practically identical character in respect to machinery and character of product. The wages in the American mill are not necessarily typical of wages in America, nor those in the English mill necessarily typical of wages for the woolen industry in England, but they can be easily compared with prevailing rates as given in the preceding table.

Table 48.—*A comparison of occupations and earnings in one English and one American mill making the same class of goods, based on actual pay rolls of the two mills, and on a week of 56 hours in each case.*

Department and occupation.	Rates of wages per week of 56 hours in specified occupations.		Excess United States over England.
	United States.	England.	
Wool-sorting department:			*Per cent.*
Wool sorters	$16.00	$8.81	81.61
Do	16.14	9.52	69.54
Average	16.08	9.02	78.27
Laborers	10.00	4.91	103.67
Do	12.00	4.91	144.40
Average	10.17	4.91	107.13
Wool-scouring department:			
Wool scourers	9.00	5.15	74.75
Do	9.00	5.39	66.98
Do	10.00	6.13	63.13
Average	9.33	5.35	74.39
Wool driers	9.50	5.62	69.04
Do	9.50	4.91	93.48
Average	9.50	5.27	80.27
Carding department:			
Carders	8.00	3.43	133.23
Do	9.00	4.66	93.13
Do	9.50	4.66	103.86
Average	8.26	4.35	89.89
Combing department:			
Gill-box minder	7.00	4.42	58.37
Do	8.00	4.66	71.67
Do	9.20	4.90	87.76
Do	9.20	5.39	70.69
Do	9.20	5.89	56.20
Average	7.58	4.79	58.25
Backwasher minder	8.50	5.15	65.06
Do	8.50	4.90	73.47
Average	8.50	5.03	68.99
Noble comb minder	9.50	5.15	84.47
Do	9.50	5.39	76.25
Average	9.50	5.25	80.95
Lister comb minder	9.00	5.15	74.76
Do	9.00	4.90	83.67
Do	9.00	5.39	66.98
Average	9.00	5.10	76.47
Comb jobber (handy man)	10.00	5.89	69.78
Do	9.50	5.39	76.25
Do	9.00	5.15	74.76
Do	8.50	4.90	73.47
Average	9.25	5.33	73.55
Spinning department:			
Drawing-frame tender	7.00	3.07	128.01
Do	7.00	3.31	111.48
Do	7.00	3.43	104.08
Average	7.00	3.21	118.07

TABLE 48.—*A comparison of occupations and earnings in one English and one American mill making the same class of goods, based on actual pay rolls of the two mills, and on a week of 56 hours in each case*—Continued.

Department and occupation.	Rates of wages per week of 56 hours in specified occupations.		Excess United States over England.
	United States.	England.	
Spinning department—Continued.			
Frame spinner—			*Per cent.*
160 spindles	5.00	2.33	114.59
160 long spindles	6.00	2.45	144.90
180 spindles	5.25	2.45	114.29
240 spindles	6.00	2.81	113.52
240 long spindles	7.00	2.95	137.29
Doffers	4.50	2.45	83.67
Do	4.50	2.33	93.13
Average	4.50	2.34	92.31
Mechanical doffers	5.00		
Do	6.00		
Do	8.00		
Do	9.00		
Roving hands	6.00	2.45	144.90
Bobbin boys	5.00	2.45	104.08
Bobbin setters	4.50	2.33	93.13
Do	5.00	2.33	114.59
Average	4.86	2.33	108.58
Twisters	7.00	2.95	137.29
Warpers	8.00	3.31	141.69
Do	7.00	3.31	111.48
Average	7.80	3.31	135.65
Jobbers (handy men)	5.00	2.45	104.08
Do	6.00	2.45	144.90
Average	5.33	2.45	117.55
Yarn scourers	11.00	6.62	81.27
Do	11.00	4.42	148.87
Do	11.00	4.66	136.05
Average	11.00	5.03	118.69
Weaving department:			
Warp dressers	14.69	8.86	65.80
Warp twisters	15.00	8.58	74.83
Do	11.00	8.58	28.21
Average	13.00	8.58	51.52
Piece examiners	12.50	6.86	82.22
Do	12.00	6.38	88.09
Do	11.50	5.89	95.25
Do	10.00	5.89	69.78
Average	11.86	6.38	85.89
Mechanical department:			
Steam engineers	13.50	6.86	96.79
Do	13.50	5.89	129.20
Average	13.50	6.38	111.91
Oiler and greaser	12.00	5.15	133.01
Do	10.00	5.15	94.17
Average	11.00	5.15	112.59
Stokers	12.50	6.13	103.92
Do	11.60	4.90	136.73
Average	11.70	5.52	111.96

TABLE 48.—*A comparison of occupations and earnings in one English and one American mill making the same class of goods, based on actual pay rolls of the two mills, and on a week of 56 hours in each case*—Continued.

Department and occupation.	Rates of wages per week of 56 hours in specified occupations.		Excess United States over England.
	United States.	England.	
Mechanical department—Continued.			*Per cent.*
Machinists	16.00	7.85	103.82
Do	15.00	6.38	135.11
Do	14.00	6.38	119.44
Do	13.00	6.38	103.76
Average	14.73	7.60	93.82
Carpenters and joiners	16.00	8.09	97.78
Do	15.00	8.33	80.07
Do	13.50	6.13	120.23
Do	13.00	6.13	112.07
Average	14.83	7.52	97.21
Blacksmith	16.00	7.85	103.82
Night watchmen	14.00	5.89	137.69
Do	14.00	5.39	159.74
Average	14.00	5.64	148.23

WAGES IN VARIOUS OCCUPATIONS IN GERMANY.

In the table which follows are shown rates of pay for timeworkers in different occupations. As far as possible the sexes of those receiving the rates are shown. Most of the mills, in which the time rates shown were paid, also paid on a piece-rate basis for the same work, but the units of pay were too numerous for presentation in a general table. Frequently where piece rates were paid a general equivalent in hourly rates was named or else a minimum week's earnings for pieceworkers, and these equivalents and guaranteed minimum earnings are included in the table which follows:

Occupation.	Number of establishments.	Rate of pay per week.					
		Males.		Females.		Sex not specified.	
		From—	To—	From—	To—	From—	To—
Beamers and warpers	15	$3.81	$6.43	$2.14	$3.81		
Bobbin and spool setters in beaming department	5						$2.02
Bobbin boys in spinning room	1		2.29				
Burlers and menders	10			2.14	4.00		
Card tenders	2		6.42	3.14	4.28		
Cleaning up the loom for new warp	1				2.38		
Combing-room hands	1				2.62		
Comb tenders and gill-box minders	1			3.14	3.28		
Doublers and twisters	2		6.00		3.57		
Drawing in through harnesses	3					$3.57	4.28
Drawing in through reeds	3					3.57	4.28
Drawing-room hands	1		4.85	3.28	3.57		
Dye-house foreman	1		10.71				
Dye-house hands	3	3.71	4.57		3.57		
Dyers	3	4.76	7.62				
Filling spoolers	1				2.38		
Finishing-room hands	1	4.28	5.36				
Fullers	3					2.64	4.57
Loom fixers	1		4.52				
Mule spinners	1	6.30	6.54				
Piecers	1	4.98	5.28	3.84	4.26		
Press tenders	1						4.28
Rag sorters	2		6.42		3.57		
Reelers	2			2.14	4.28		
Repair-room hands	1	4.20	4.80				
Scouring-machine tenders	2						5.71
Second hands in beaming department	7	4.05	5.71				
Setting up harnesses for new cut	3					.048	[1].083
Shoddy-machine tenders	1		3.71				
Spinning-room hands	1						4.28
Steam cloth finishers	1		5.95				
Teaselers	2	3.57	4.28				
Tenterers	1						4.05
Tiers in or twisters in	2	4.26	5.47				
	1				3.57		
Warehouse hands	1				3.71		
Winders	2				2.62		
Wool sorters	2			2.86	4.00		
Yarn packers and steamers	13						5.00
	1	5.28	5.42		3.57		
Yarn sizers	7	4.05	5.95				

[1] Rate per hour.

A larger number of establishments paid beamers and warpers on a piece-rate basis than on time rates, the prevailing unit of pay being 100,000 meters or 109,361 yards, and the rate per unit being 12 cents. The beamers on machines with hand power were paid more than those on power machines. One establishment paid from 3 to 7 mills per pound on 2-ply yarns and from 4 to 14 mills per pound on 1-ply yarns.

For burling and mending one establishment paid from 11 to 21 cents per cut. For sewing the piece rate in two establishments ranged from 48 cents to $1.14 per cut of 52 yards.

Seven establishments paid weavers from 1.2 to 1.8 cents per 100 warp ends for drawing in through the harnesses. As a rule, the weaver in Germany does his own drawing in and reeding in, and does it at the loom. For drawing in through the reed he is paid from 5 to 11 mills per 100 ends, or a flat rate of from 9.5 to 35.7 cents each time a change of cut necessitates such work. These drawing-in rates vary both according to the number of harnesses and reeds and to the number of colors in the warp.

Handers in received from 5 to 7 mills per 100 ends. Another work for which the German weaver is paid is hanging the harnesses and reed in the loom preparatory to weaving a new warp. For this he receives 1.2 cents per harness, if he has some one to help him, and twice as much if he does it alone. Other establishments paid a flat rate of from 11.9 to 95.2 cents for hanging the harnesses and reed. For tying in or twisting in on ordinary products 24 establishments paid from 7 to 20 mills for 100 ends, and on pattern products 8 establishments paid from 12 to 24 mills per 100 ends.

Winders in one establishment received from 8.3 to 13.1 cents for winding 54,680 yards.

The following tables deal with the weekly earnings of workers in the woolen and worsted industry in Germany by specified occupations.

Table 49 is a compilation of returns made to the central organization of textile workers, and shows wages by specific occupations in a number of different localities. The table shows the number of returns on the indicated occupation from each locality and the wage rate for males and females. The first column shows the total number reporting for the entire Nieder-Lausitz region, and the average wage for the entire region. The other columns show the facts for localities in that region, showing the rates at Forst, Cottbus, Spermberg, etc.

TABLE 49.—*Average weekly pay in specified occupations in Germany.*

Occupation.	Sex.	Neider-Lausitz region.		Cottbus.		Forst.		Spermberg.	
		Number of persons reporting.	Average, pay per week.	Number of persons reporting.	Average pay per week	Number of persons reporting.	Average pay per week.	Number of persons reporting.	Average pay per week.
Filling spoolers	Female	202	$3.03	152	$2.68	19	$2.91	23	$1.94
Warp spoolers	do	268	2.99	246	3.04	9	3.33	7	1.95
Twisters	do	474	2.88	172	3.15	204	2.69	71	2.61
Bobbin setters	Male and female.	66	2.12	31	1.84	17	2.51	18	2.23
Opening and picker room hands.	do	179	3.28	35	3.20	26	4.01	46	3.49
Card-room hands	do	298	2.73	62	2.84	57	2.89	66	3.01
Fulling-mill hands	Male	187	3.62	62	3.48	29	4.50	39	3.71
Dye-house hands	Male and female.	632	3.42	456	3.32	82	3.93	46	3.54
Finishing-room hands	do	731	3.15	137	3.46	64	3.96	95	3.33
Cloth sizers and dressers.	Male	22	4.08	19	4.03	1	4.28	2	4.52
Burlers and menders	Female	574	2.62	237	2.57	92	2.94	171	2.67
Sewers	do	372	3.57	334	3.61	32	3.30	6	3.09
Sorters and shoddy pickers.	Male	7	2.26	....	....	....	....	7	2.26
Total		4,012	3.224	1,943	3.159	632	3.216	597	2.959

TABLE 49.—*Average weekly pay in specified occupations in Germany*—Continued.

Occupation.	Sex.	Sommerfeld.		Finsterwalde.		Guben.	
		Number of persons reporting.	Average pay per week.	Number of persons reporting.	Average pay per week.	Number of persons reporting.	Average pay per week.
Filling spoolers	Female	8	$1.89				
Warp spoolers	do	6	1.55				
Twisters	do	6	1.84			21	$3.69
Bobbin setters	Male and female.						
Opening and picker room hands.	do	47	2.79	16	$3.71	10	2.95
Card-room hands	do	65	2.58	34	2.03	14	2.62
Fulling-mill hands	Male	23	3.12	13	3.81	21	3.08
Dye-house hands	Male and female.	23	3.38			25	3.51
Finishing-room hands	do	90	2.73	223	2.98	122	2.89
Cloth sizers and dressers	Male						
Burlers and menders	Female	34	2.43	40	2.08		
Sewers	do						
Sorters and shoddy pickers	Male						
Total		302	2.689	326	2.839	213	3.045

Below in Table 50 will be found the earnings of male and female operatives in woolen and worsted mills covering a large number of occupations and in many instances a considerable period of time.

These represent the pay checks of employees, some of whom, being time workers at a weekly rate, show only the hours for one week. Piece workers show the individual's pay for at least a month, some for three or more months. In each case the total hours worked in the period covered are shown, together with total earnings and average hourly rate. For the most part these are from the Luckenwalde District, though some are from near Aachen.

Averages are not of much value based on so few cases as we find in some occupations, but are given for such value as they may have. Female menders average 7.22 cents per hour. These were all from in or near Luckenwalde; male carders in a mill near Aachen average 8.22 cents an hour. Female spinners (ring frame) in Luckenwalde average 5.64 cents an hour, etc.

TABLE 50.—*Hourly earnings of operatives in German woolen and worsted mills, by occupation and sex.*

Occupation.	Sex.	Age.	Total hours worked.	Total wages.	Rate per hour.
Spinners	Female	15	522	$34.19	$0.066
Do	do	16	60	2.57	.043
Do	do	16	519	31.32	.060
Do	do	17	574.5	30.15	.053
Do	do	18	721.5	35.50	.049
Do	do	18	646.5	32.62	.051
Do	do	18	702	43.26	.062
Do	do	20	692.5	43.32	.063
Do	do	20	595	34.31	.058
Do	do	20	692.5	37.74	.055
Do	do	24	712	42.57	.060
Do	do	24	679	33.67	.050
Do	do	24	667	33.22	.050
Do	do	26	580	34.65	.060
Do	do	30	617.75	36.97	.060
Do	do	31	692.5	38.03	.055
Do	do	32	613	35.20	.057
Do	do	34	703	37.63	.054
Do	do	39	598	35.44	.059

TABLE 50.—*Hourly earnings of operatives in German woolen and worsted mills, by occupation and sex*—Continued.

Occupation.	Sex.	Age.	Total hours worked.	Total wages.	Rate per hour.
Spinners	Female	42	619	$36.06	$0.058
Do	Male		256	28.44	.1111
Do	..do		256	30.42	.1188
Do	..do		256	25.35	.0990
Do	..do		256	29.16	.1139
Do	..do		256	24.82	.0970
Mender	Female	16	451.25	38.24	.0847
Do	..do	16	547.50	40.32	.0735
Do	..do	16	493	35.69	.0724
Do	..do	17	517	35.17	.0680
Do	..do	17	721.50	39.33	.0545
Do	..do	18	493.75	41.90	.0847
Do	..do	18	488.50	35.94	.0735
Do	..do	18	388.50	25.66	.0661
Do	..do	18	487	35.81	.0735
Do	..do	19	362	33.16	.0916
Do	..do	19	721.50	45.43	.0630
Do	..do	19	615.50	43.21	.0593
Do	..do	19	631	31.73	.0502
Do	..do	21	444.75	36.95	.0831
Do	..do	21	532.50	38.30	.0719
Do	..do	22	458.50	29.77	.0649
Do	..do	23	481.50	32.32	.0797
Do	..do	24	574.75	39.30	.0683
Do	..do	24	484	42.37	.0876
Do	..do	24	550.50	37.01	.0674
Do	..do	25	55.50	3.93	.0707
Do	..do	25	384.75	31.42	.0816
Do	..do	25	548	35.79	.0609
Do	..do	29	665.75	47.81	.0719
Do	..do	30	50	3.93	.0655
Do	..do	30	369	28.81	.0781
Do	..do	32	451.75	33.58	.0743
Do	..do	33	480	34.99	.0728
Do	..do	37	463	41.79	.0902
Do	..do	37	635	35.24	.0555
Do	..do	38	405	36.31	.0897
Do	..do	41	391.25	30.01	.0766
Do	..do	51	457	34.73	.0759
Carder	Male		256	21.73	.0849
Do	..do		256	23.34	.0912
Do	..do		256	19.74	.0771
Do	..do		256	17.80	.0695
Do	..do		256	20.77	.0811
Do	..do		256	24.75	.0967
Do	..do		256	23.51	.0919
Do	..do		256	23.51	.0919
Do	..do		256	15.47	.0604
Do	..do		256	19.42	.0759
Do	..do		256	21.66	.0846
Do	Female		256	14.23	.0556
Do	..do		252	13.28	.0527
Do	..do		252	16.09	.0638
Teaseler	Male	31	60	3.71	.0619
Do	..do	33	60	3.57	.0595
Do	..do	34	651.75	40.73	.0625
Do	..do	54	60	3.86	.0643
Do	..do	61	60	3.36	.0559
Do	..do	62	60	3.28	.0547
Spooler	Female	17	691	29.39	.0426
Do	..do	19	614.50	41.00	.0666
Do	..do	38	692.50	42.11	.0607
Do	..do	45	682.50	34.88	.0511
Do	..do	47	682.75	40.61	.0595
Twister	..do	21	721.50	44.16	.0612
Do	..do	21	721.50	53.72	.0744
Do	..do	22	674	43.80	.0650
Do	..do	22	645.50	47.97	.0743
Do	..do	22	691	41.29	.0597
Do	..do	23	607.50	38.01	.0625
Do	..do	26	695.50	41.98	.0604
Opener	Male		256	24.19	.0945
Do	..do		256	18.08	.0706
Do	..do		256	17.08	.0667
Do	..do		126	9.14	.0725
Piecers	..do		256	13.61	.0532
Do	..do		256	11.05	.0432
Do	..do		256	10.83	.0423

TABLE 50.—*Hourly earnings of operatives in German woolen and worsted mills, by occupation and sex*—Continued.

Occupation.	Sex.	Age.	Total hours worked.	Total wages.	Rate per hour.
Piecers	Male		256	$10.76	$0.0420
Do	do		256	11.38	.0444
Do	do		256	11.11	.0434
Do	do		256	10.14	.0396
Do	do		256	10.78	.0421
Do	do		256	8.57	.0335
Do	do		256	8.90	.0348
Yarn-stock man	Male	45	60	4.76	.0793
Drawer-in	Female	16	680.50	38.06	.0559
Cloth presser	Male	34	60	3.43	.0571
Picker-machine tender	do	42	60	3.86	.0643
Card tender	Female	25	60	3.00	.0500
Do	do	50	60	3.21	.0536
Warp sizer	Male	54	729	80.75	.1107
Fulling-mill hand	do	30	60	3.86	.0643
Do	do	42	60	4.07	.0678
Do	do	42	773	63.42	.0821
Finishing-room hand	do	44	60	3.00	.0500
Dryer	do	34	780	80.67	.1035
Sorter	Female	29	614	33.68	.0548
Do	do	30	1,110	34.49	0312
Do	do	41	653	32.33	.0495
Spool or bobbin setter	do	15	687.50	27.94	.0407
Dyer	Male	19	60	3.86	.0643
Do	do	51	60	4.00	.0666
Reeler and winder	do	29	60	4.28	.0714
Burler	Female	17	646	34.65	.0536
Do	do	23	60	3.36	.0559
Do	do	25	644.75	37.50	.0583
Do	do	37	718.25	29.38	.0409
Do	do	59	654	29.31	.0447
Warp beamer	Male	54	60	3.64	.0607
Do	do	67	60	3.88	.0643
Do	Female	17	60	3.21	.0536
Do	do	19	702.50	41.24	.0587
Do	do	19	444	31.58	.0711
Do	do	22	676.75	46.04	.0680
Do	do	29	721.50	46.40	.0643
Do	do	29	620	44.65	.0720
Do	do	30	60	3.21	.0536

RATES OF WAGES AND HOURS OF LABOR IN AUSTRIAN WOOLEN AND WORSTED MILLS.

The information regarding wage rates paid in different occupations in Austrian woolen and worsted establishments, and in wool-dyeing establishments, represents 48 individual establishments located in 15 towns, and also includes the wage scales used by the establishments controlled by two large associations of manufacturers. Such establishments as did not make woolen or worsted cloths, and such as did not dye wool in one form or another, have been excluded from consideration.

In the Austrian mills the payment of wages on a time basis still greatly predominates over payment on a piece-rate basis. Of 37 occupations for which rates are shown in the tables which follow, only 7 were paid for on a piece-rate basis, and even in the 7 piece-rate occupations, which include mule spinning, spooling, twisting, reeling, weaving, and tying-in, certain establishments paid on a time basis. Hourly rates and weekly rates have been reduced to day rates. The reports from the following mills showed the hours of labor per week, as follows:

Establishments numbered 24, 25, 26, and 27, in the Austrian weavers' wage scale table, run 58½ hours per week; establishment 28 runs 60 hours for time workers, 63 for piece workers; 29 runs 56 hours; 32 and 33 run 57 hours; 40 runs 53½ hours; 41 and 44 run 55 hours; while establishment number 43 runs 63 hours per week.

There was no uniform custom in distributing the weekly hours of labor, but in most establishments work began at 6 or 6.30 a. m. and ended at 6 p. m., with from one-half an hour to an hour and a half about noontime. Some establishments allowed a quarter-hour pause in the forenoon and afternoon, and counted in with the regular hours of labor the time for paying off employees and a half hour each Saturday or the day preceding a holiday for cleaning up the workrooms. In practically all establishments certain holidays were observed, for which days the employees were either paid a full-time wage, regardless of the amount of production, or else were paid at an increased rate for each hour worked. Overtime and night work for all indoor occupations were paid from 40 to 50 per cent higher in many establishments. One establishment, No. 28, had a 10-hour day for time workers and a 10½-hour day for pieceworkers.

In Table 51 the rates of pay per day in occupations preparatory to spinning are shown:

TABLE 51.—*Showing rates of pay per day for occupations preparatory to spinning.*

Establishment or group number.	Rate of pay per day.				
	Wool sorters, male.	Wool sorters, female.	Picker-machine tenders (all males).	Card tenders (all females).	Card strippers (all males).
10		$0.28	$0.45	$0.33–$0.39	$0.45–$0.51
11	$0.27		$0.43– .45	.33– .39	
12			.43– .45	.33– .39	.45– .51
13			.45	.35– .39	.47– .51
14	.28		.46	.35– .39	.46– .51
16			.45	.35– .39	.51
17			.43– .45	.33– .39	.47– .51
18			.45	.35– .39	.47
19			.45	.35– .39	.48
20				.33– .35	.51
21			.47	.33– .36	.47
23			.43– .51	.33– .39	.43
25					.61
26			.49 [2] .53	.55–[1] .65 .43–[3] .55	.68
27			.41– .49	.31– .35	.61
28				[4] .35	
31		[5] 41– .61			
42		.35– .41			

[1] Male finisher card tenders.
[2] Rate paid for night work.
[3] Female finisher card tenders.
[4] Rate paid to male card feeders.
[5] Rate paid to blenders.

Women and girls predominated in the occupations of wool sorting and wool blending. Practically all were time workers; the few who were pieceworkers were working under a guaranteed minimum of earnings about equal to the usual time rate. The lowest rate paid was 27 cents per day and the highest 41 cents. One establishment paid beginners 35 cents per day for the first six weeks of their employment. In another establishment women wool blenders were paid 6.1 cents per hour and young girls 4.1 cents per hour.

In 13 establishments picker-machine tenders received from 41 to 51 cents per day; the average rate was about 45 cents. Two establishments paid a rate of 53 cents per day for night work. One mill paid its picker-room foreman $3.25 per week and in addition a premium of 4.1 cents for each 100 kilos (220 pounds) of finished yarn produced.

In Austria card tending is done almost exclusively by females, only 2 out of 15 establishments showing any men as card tenders. The pay of the women varied slightly with the width of the carding cylinder. In no instance was it lower than 31 nor higher than 39 cents per day. Usually within that range each establishment had four groups of card tenders, paid according to the width of the cards. One establishment employing men in this department paid them from 55 to 65 cents per day for tending finishing cards and paid women from 43 to 55 cents per day for doing the same kind of work. Card feeders who were men were paid 35 cents per day and card boys $1.91 per week, or 32 cents per day. Card stripping is done entirely by men, and the variations in rates of pay depend upon term of service with their employer or upon efficiency. Of the 14 establishments reporting rates for card strippers, the highest rate, 68 cents per day, was paid in an establishment in Brunn, and the man receiving it was not entitled to any increase of pay for overtime work or work on holidays, as others were. The lowest rate reported was 43 cents per day. The average rate was about 47 cents per day.

In Austria, as elsewhere in Europe, the dyeing of stock, yarns, and cloths is done mostly in dyeing and finishing establishments, although some cloth-producing establishments have their own dyehouse departments. The rates of wages secured for dyehouse labor were for both kinds of establishments and included (*a*) 13 cloth-producing establishments which do their own dyeing, (*b*) a combination of 7 dyeing establishments, (*c*) a larger combination of cotton, silk, and wool dyeing establishments, of which 13, included here, dye wool or woolen yarns and cloth, and (*d*) the Verband Oesterreichischer Seidenfärber (association of Austrian silk dyers).

TABLE 52.—*Rates of pay per day for work in the dyehouse.*

Establishment or group number.	Hours of labor per week.	Sex of employees.	Rank and experience of dyers or kind of work on which engaged.	Rate of pay per day.	
				From—	To—
10		Male	Not specified	$0.45	$0.49
11		do	do	.47	.49
12		do	do	.47	.49
13		do	do	.47	.49
14		do	do		.48
16		do	do	.47	.49
17		do	do	.47	.49
19		do	do		.47
20		do	do	.47	.49
21		do	First man		.49
		do	Others		.47
23		do	Not specified		.47
24	58½	do	First group (2 men)	.59	.60
		do	Second group (3 men)	.49	.51
		do	Third group (2 men)		.45
27	58½	do			.59
		do	Group 1		.47
		do	Group 2		.43
		do	Group 3		.41
29	56	do	Independent dyers, over 23 years old		.91
		do	Dyers changing from cotton or silk to wool dyeing		[1] .81
		do	do		[2] .85
		do	Skilled dyers, during first year after apprenticeship		.78
		do	Skilled dyers, after first year after apprenticeship		.85
		do	Helpers at the dye vats		.68
		Female	After 1½ years' experience at one branch of dyeing		.41
		do	After 3 years' experience at one branch of dyeing		.44
39		Male	Beginners		.57
		do	After ½ year's experience		.61
		do	After 1 year's experience		.64
		Female	Beginners		.31
		do	After ½ year's experience		.34
		do	After 1 year's experience		.37
44	55	Male	Independent dyers, over 21 years old		.98
		do	Dyers changing from cotton or silk to wool dyeing	[1] .85	[2] .91
		do	Skilled dyers, during first year after apprenticeship		.78
		do	Skilled dyers, during second year after apprenticeship		.91
		do	Helpers at the dye vats	[3] .75	[4] .88
		Female	After 1½ years' experience		.41
		do	After 3 years' experience		.47

[1] During first 3 months after change.

[2] After first 3 months in new kind of dyeing establishment.

[3] Younger men.

[4] Older and preferred employees.

In the 13 cloth-producing establishments which do their own dyeing the rates of pay for dyers and dyers' helpers ranged from 45 to 49 cents per day. A few establishments paid a rate as high as 60 cents per day, and one paid a rate as low as 43 cents per day, but those rates were the pay of individual persons and no doubt were determined by particular causes. These dyers and dyers' helpers were not the chemists or color mixers whose knowledge must be technical, but rather the manual workers at the vats who combined with their physical labor a certain degree of skill in handling and of knowledge of just how the dye is taking effect and what subsequent treatment the dyed stock or yarn, or cloth, must undergo. It is in this sense only that the term "dyer" is used throughout in connection with the rates of pay.

In the second group, comprising seven separate dyeing establishments, the lowest pay for dyers during the first half year of their employment was fixed at $3.45 per week, or about 57 cents per day. In the second half year of their employment their lowest pay was fixed at $3.65 per week, or 61 cents per day, and after one and a half years at $3.86 per week, or 64 cents per day. Working up through the same terms of employment, females began at $1.83 per week, or 31 cents per day, and reached at length a rate of $2.23 per week, or 37 cents per day.

The third and fourth groups mentioned above were more nearly alike in the rates paid and in their division of the dyers and their helpers into wage groups. Both groups of establishments fixed $4.67 per week, or 78 cents per day, as the lowest amount that might be paid to skilled dyers during the first year after the completion of their apprenticeship, and $5.08 and $5.48 per week, or 85 and 91 cents per day, respectively, as the lowest rate for them during the second year after their apprenticeship was completed. Independent dyers over 21 years old, whose qualifications as dyers and whose actual employment as dyers were certified to by the establishment employing them, received respectively in the two groups of establishments $5.48 per week, or 91 cents per day, and $5.89 per week, or 98 cents per day, as a lowest wage rate. To such dyers as had changed from cotton dyeing to silk dyeing, or from silk or cotton dyeing to wool dyeing, these two groups of establishments paid between $4.87 per week, or 81 cents per day, and $5.48 per week, or 91 cents per day and made the increase in rate occur at the end of three months' work in the new kind of dyeing. Both groups distinguished the dyers from the helpers at the dye vats, and paid the latter from 68 to 91 cents per day. The number of men who might be employed as dye-vat helpers was restricted in these two groups of establishments to from 20 to 25 per cent of the number of experienced dyers, and any number of dye-vat helpers in excess of that percentage had to be paid the lowest rate paid to experienced dyers. Females after one and one-half years' experience were paid 41 cents per day in both groups, and after three years they were paid from 44 to 47 cents per day.

In the following table (Table 53) the time and piece rates paid in seven occupations in the yarn departments of certain mills are shown.

TABLE 53.—*Time and piece rates paid in the yarn departments of Austrian mills.*

Establishment or group number.	Occupation, rank, and experience of employees.	Sex of employees.	Time-work.		Piecework.			
			Hours per week.	Rate per day.	Number of machines attended.	Kind of material on which employee was at work.	Unit of pay.	Rate per unit.
24	Mule spinners	Male	58½		Up to 480 spindles	Yarn up to 5½ [1]	220 pounds	$1.19
	do	do	58½		do	Yarn 5¾ to 7	do	1.31
	do	do	58½		do	Yarn 7¼ to 8½	do	1.40
	do	do	58½		do	Yarn 8¾ to 10	do	1.44
	do	do	58½		do	Yarn over 10	100 hanks [2]	.13
25	do	do	58½			Yarn 1 to 5½	220 pounds	1.10
	do	do	58½			Yarn 5¾ to 7	do	1.26
	do	do	58½			Yarn 7¼ to 8	do	1.30
	do	do	58½			Yarn 8¼ to 8¾	do	1.36
	do	do	58½			Yarn 9 to 10	do	1.42
26	do	do	58½		Up to 420 spindles	Yarns more than 10	100 hanks [2]	.15
13	do	do		$0.58				
10	Yarn untanglers, 1st month of employ	do		.20				
	Yarn untanglers after 1st month of employ.	do		.34				
11	Filling spoolers	do				Yarn 2/30 to 22	220 pounds	2.03
	do	do				Yarn 17 to 11	do	1.83
	do	do				Yarn 12 to 7	do	1.42
	do	do				Yarn 6 to 3½	do	1.22
14	do	do				Yarn 10 to 14	do	1.83
	do	do				Yarn 5 to 9	do	1.42
	do	do				Yarn under 5	do	1.02
	do	do				Laskas yarns	do	2.03
15	do	do		.43				
16	do	do				Yarn 7 to 10	220 pounds	1.52
	do	do				Yarn 12 to 15	do	1.62
	do	do				Worsted yarn 2/12	do	1.42
	do	do				Worsted yarn 2/24	do	1.83
	do	do				Worsted yarn 2/32	do	2.23
	do	do				Carded wool yarn 16 to 18	do	1.83
	do	do				Yarn 6 to 20	do	1.22
	do	do				Yarn 4 to 6	do	1.22
21	do	do		.35				
37	do	do				Yarn up to 4½	220 pounds	1.12
	do	do				Yarn 5 to 7½	do	1.22
	do	do				Yarn 8 to 9½	do	1.42
	do	do				Yarn 10 to 11½	do	1.73
	do	do				Yarn 12 to 13½	do	2.03
	do	do				Yarn 14 to 15½	do	2.34
	do	do				Yarn 16 to 17½	do	2.54

	do	do				Yarn 18 to 19½	do	2.74
	do	do				Yarn 20 to 21½	do	2.94
	do	do				Yarn 22 to 23½	do	3.15
	do	do				Yarn 24 to 25	do	3.35
41[1]	Filling spoolers (hand, skilled)	Female.	55	.37				
	Filling spoolers (machine, skilled)	do	55	.44				
12	Filling spoolers	Male					Pay on loom using product.	*Per cent.* 12–14
13	do	do					do	12½
17	do	do					do	17
	do	do					do	14
	do	do					do	13
	do	do					do	13
	do	do					do	12
18	do	do					do	13
	do	do					do	10
19	do	do					do	12
20	do	do					do	12
10	Warp spoolers	do					100 hanks[2]	$0.07
25	do	do	58½			Worsted yarn 2/24 to 2/14	do	.07
	do	do	58½			Worsted yarn 2/40 to 2/64	do	.08
	do	do	58½			Worsted yarn 2/24 to 2/40	do	.08
	do	do	58½			Worsted yarn 2/52	do	.11
	do	do	58½			Worsted yarn 2/64	do	.13
	do	do	58½			Worsted yarn 2/64	do	.11
	do	do	58½			Carded wool yarn	do	.09
14	do	do				Yarn 5 to 15	220 pounds	.81
	do	do				Yarn under 5	do	.71
17	do	do				Yarn 12 to 15	do	1.02
	do	do				Yarn 7 to 10	do	.81
	do	do				Yarn under 7	do	.61
	do	do		.41		On badly running stock		
18	do	do				Yarn, 10	220 pounds	.73
19	do	do				Yarn 13½	do	.91
	do	do		.28		Yarn 13½		
20	do	do				Yarn 3 to 5	220 pounds	.51
	do	do				Yarn 5 to 7	do	.61
	do	do				Yarn 8 to 12	do	.71
	do	do				Yarn 13 to 14	do	.81
21	do	do				Yarn 3 to 5	do	1.02
	do	do				Yarn 6 to 16	do	1.22
23	do	do		.33		Piece rate to go into effect within 4 weeks		
11	Twisters	do		.51		Piece rate paid, but not to fall below the day rate shown.		
12	do	do		.51		do		
20	do	do		.41		do		
23	do	do		.49				
28	do	do	60	.35				

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[1] The unit for yarns spun, spooled, twisted, reeled, etc., is the "strähn," meaning a yarn of which 1,000 meters, or 1,094 yards, are required to weigh 1 kilogram, or 2.2046 pounds. A 5½-strahn yarn is one requiring 5,500 meters, or 6,015 yards, to weigh 1 kilogram, or 2.2046 pounds, i. e., the number is the international count.

[2] One hank containing 1,000 meters, or 1,094 yards, of yarn.

TABLE 53.—*Time and piece rates paid in the yarn departments of Austrian mills*—Continued.

Establishment or group number.	Occupation, rank, and experience of employees.	Sex of employees.	Time-work.		Piecework.			
			Hours per week.	Rate per day.	Number of machines attended.	Kind of material on which employee was at work.	Unit of pay.	Rate per unit.
10	Twisters	Male					220 pounds	$1.17-2.64
14	do	do				Yarn 20/21	do	1.62
	do	do				Yarn 16/2	do	1.42
	do	do				Yarn 20/30	do	2.64
	do	do				Yarn 16/64	do	4.67
	do	do				Yarn 5½/30	do	1.02
19	do	do				Carded wool yarn 22/22	do	2.84
	do	do				Carded wool yarn 13/13	do	1.62
	do	do				Carded wool yarn 10/10	do	1.22
18	do	do				Spooled yarn	100 hanks	1.27
	do	do				Unspooled yarn	do	1.32
25	Reelers	Female	58½			Yarn 1 to 5/2	220 pounds	.53
	do	do	58½			Yarn 5¾ to 7	do	.59
	do	do	58½			Yarn 7 to 8	do	.63
	do	do	58½			Yarn 8 to 10	do	.67
	do	do	58½			Yarn over 10	100 hanks	.08
	do	do	58½			Twist yarns	do	.07
	do	do	58½			Yarns for backing cloth	do	.04
26	do	do	58½			Yarn 5½	220 pounds	.57
	do	do	58½			Yarn 7	do	.61
	do	do	58½			Yarn 8½	do	.65
	do	do	58½			Yarn 8½ to 9	do	.69
	do	do	58½			Yarn 9 to 10	do	.71
	do	do	58½			Yarn over 10	100 hanks	.07
27	Yarn packers	Male	58½	$0.45				
	do	do	58½	.49				

Mule spinners were paid usually per 100 kilograms, or per 220.46 pounds produced, with an increase in the rate with the smaller yarns. One establishment paid mule spinners tending 480 spindles $1.19 per 100 kilograms (220 pounds) for spinning number 5½ (that is, yarn which requires 5,500 meters, or 6,014.8 yards, to weigh 1 kilogram, or 2.2046 pounds), and paid other spinners tending the same number of spindles $1.44 for spinning number 10 yarn, or yarn requiring 10,000 meters, or 10,936 yards to weigh 1 kilogram. When the yarn spun was numbered higher than number 10, the spinner was paid 13 cents per 100 hanks of 1,000 meters, or 1,093.6 yards, each. This rate, when reduced to the kilogram basis, was $1.30 per 220 pounds, or 14 cents less than was paid for numbers 8¾ to 10.

In another establishment the rates per 220 pounds were as follows:

	Rate per 220 pounds.
Yarn Nos. (metric or international system):	
1 to 5½	$1.10
5¾ to 7	1.26
7¼ to 8	1.30
8¼ to 8¾	1.36
9 to 10	1.42

A third establishment paid spinners $3.49 per week, or 58 cents per day; and a fourth paid them 15 cents per 100 hanks of 1,093.6 yards each, or $1.50 per 220 pounds on yarns less than No. 10. In these four establishments all mule spinners were males. Two of these establishments paid reelers, all of whom were females, as follows:

FIRST ESTABLISHMENT (NO. 25).

	Wage rate per 220 pounds.
Yarn Nos. (metric or international system):	
1 to 5½	$0.53
5¾ to 7	.59
7 to 8	.63
8 to 10	.67
Over 10	[1] .077
Twist yarns	[1] .073
Yarns for backing	[1] .041

SECOND ESTABLISHMENT (NO. 26).

Yarn Nos. (metric or international system):	
5½	$0.57
7	.61
8½	.65
8½ to 9	.70
9 to 10	.71
Over 10	[1] .073

[1] Per 100 hanks.

The yarn boys were paid a piece rate, which was not reported, but were guaranteed earnings of not less than 34 cents per day. Yarn packers received from 45 to 49 cents per day.

Three establishments paid spoolers of filling yarn between 35 and 44 cents per day. Six others paid the filling-yarn spoolers from 10 to 17 per cent of the pay on the loom using the yarn spooled. In four other establishments the spoolers of filling yarn were paid piece rates on a basis of 1 kilogram, and here the rates, which are reduced in Table 53 to a 100-kilo, or 220-pound basis for greater convenience of comparison with other occupations, ranged from $1.02 for 220 pounds of yarn under No. 5 to $3.35 per 220 pounds for No. 25 yarn. Thus the rates increased as the yarn spooled became finer. The average of the rates paid was $1.90 per 100 kilos. Female hand spoolers were paid 37 cents per day and machine spoolers 44 cents per day.

Only one establishment paid its warp-yarn spoolers on a time basis, their rate being $1.99 per week, or 33 cents per day (all males). Six paid on a basis of 100 kilo (220 pounds), their rates ranging from 51 cents for Nos. 3 to 5 yarn up to $1.22 for No. 16 yarn.

All rates reported for twisting were for males. For this work two establishments paid 35 cents and 49 cents per day, respectively. Three establishments, which paid on a piece-rate basis, which was not reported, reported day rates ranging from 41 to 51 cents, below which the piece-rate earnings were not allowed to fall. The prevailing day rate for twisting was therefore about 45.4 cents. The lowest piece rate reported was $1.02 per 220 pounds for twisting a 5½ and a 30 "Strähn" yarn together, and the highest rate was $4.67 per 220 pounds for twisting a 16 and a 64 yarn together. For twisting two 10 carded-wool yarns together another establishment paid $1.22 per 220 pounds, and paid $2.84 per 220 pounds for twisting two 22 carded-wool yarns together. Other rates in other establishments for other sizes of yarn within the limits indicated were within these ranges in rate.

In so far as the scales show rates for the general labor and indoor occupations connected with a woolen or worsted mill, these rates have been tabulated below:

TABLE 54.—*Rates of pay in miscellaneous occupations.*

Establishment No.	Occupation.	Rate of pay per day.
24	Stationary fireman	$0.68
	do	.64
	Blacksmith	.45
	Carpenter	.51
	Mason	.57
	Belt maker	.45
	Teamster	.48
	Night watchman	.46
28	Day laborer	.37
27	Gear tender	.57

In practically all indoor occupations the worker received an increase of from 25 to 50 per cent in his rate when he worked overtime, at nights, or on holidays.

PART IV.—SECTION 1.

READY-MADE CLOTHING AND WEARING APPAREL.

READY-MADE CLOTHING.

Any inquiry into the subject of wool and its products would be incomplete without a thorough consideration of the manufacture of men's and women's garments. To the producers of cloth this industry is of primary importance, inasmuch as it absorbs the greater part of their product. The clothing manufacturer is a wholesale buyer of the products of the mill, and the greatest part of the cloth produced by the mill in men's goods and a very great part, if not the greatest, in women's cloths reaches the consumer only through the medium of the manufacturers of factory-made garments.

How true this is of the men's clothing industry is shown by the fact that as far back as 1900 the output of men's clothing as a factory product was valued at twice the custom product. To the great body of consumers the factory product is of even more significance than the above ratio might indicate, since the value of the custom-made product is the result of relatively high prices per garment as compared with factory-made clothing.

It is more difficult to show by the figures the relative importance of the factory product in women's clothing as compared with the output of the ladies' custom tailor, the dressmaker, and the home. But every successive census has revealed a remarkable growth in the women's clothing industry, indicating that in a great measure the factory industry is coming to hold for women's wear the place it now holds for men.

According to the United States Census figures for 1905, men's clothing ranked seventh in the gross value of products and women's clothing fifteenth. The combined output of the two industries, $603,500,000, ranks fifth; the value of their products was exceeded in only four other industries, those concerned with the products of meat, and flour, the machine shops and foundries, and the steel and iron works. From the point of view of wages paid out, men's and women's clothing ranked respectively eighth and tenth. The combined pay rolls of the two industries in 1905 was approximately $110,000,000, to which should be added most of the $41,000,000 paid out for contract work. The amount expended for wages in the two garment industries combined is exceeded in only four other industries.

Since 1905 there has been a large growth, the product of men's clothing having increased more than one-third and that of women's clothing more than one-half. The combined output of the two industries, according to the last census, exceeded $870,000,000. The details are shown in the following table:

TABLE 1.—*Clothing, men's.*

Items.	United States.	New York City.	Chicago.	Baltimore.	Philadelphia.	Rochester.
Number of establishments.	5,584	2,350	659	310	414	196
Persons engaged in manufactures	218,255	70,637	37,537	16,974	9,480	8,559
Proprietors and firm members	7,375	3.368	812	430	592	241
Salaried employees	19,697	5,994	3,835	1,454	655	586
Wage earners (average number)	191,183	61,275	32,890	15,090	8,233	7,732
Capital	$230,703,112	$78,372,785	$35,753,963	$15,624,572	$11,396,544	$10,808,113
Expenses	438,488,649	176,761.862	75,278,065	26,817,911	19,267,471	17,355,581
Services	112,727,058	42,707,495	19,624,413	7,925,505	5,092,802	4,970,713
Salaries	23,082,137	7,314,866	4,195,296	1,590,697	815,431	1,162,151
Wages	89,644,921	35,392.629	15,429,117	6,334,808	4,277,371	3,808.562
Materials	252,522,567	99,428,640	42.033,777	15,818,020	10,819,420	8,681.561
Miscellaneous	73,239,024	34,625,727	13,619,875	3,074,386	3,355,249	3,703,307
Value of products	485,677.493	195,555,371	83,735,584	29,236,539	21,852.261	18,878,508

TABLE 2.—*Clothing, women's.*

Items.	United States.	New York City.	Philadelphia.	Chicago.	Cleveland.
Number of establishments	4,558	2,995	351	204	98
Persons engaged in manufactures	179.021	110,567	15,627	6,666	6,326
Proprietors and firm members	6,482	4,332	576	254	100
Salaried employees	18,796	11,977	1,551	797	708
Wage earners (average number)	153,743	94,258	13,500	5,615	5,418
Capital	$129,301,057	$80,761,926	$10,590,279	$5,193,048	$4,940,583
Expenses	341,489,256	236,090,095	26,293,811	14,136,673	12,837,165
Services	98,986,029	66,616,938	8,104,608	3,911,981	4,029,437
Salaries	20,417,768	13,099,250	1,530,733	915,022	1,126,263
Wages	78,568,261	53,517,688	6,573,875	2,996,959	2,903,174
Materials	208,788,226	144,845,027	16,665,940	8,658,249	6,496,487
Miscellaneous	33,715,001	24,628,130	1,523,262	1,566,443	1,311,241
Value of products	384,751,649	266,477,381	30,132,842	15,676,925	12,788,775

In considering these census data, it should be borne in mind that under men's clothing is included children's clothing and some wearing apparel other than the regular men's outer garments. Similarly women's clothing includes more than the woolen skirts, suits, and coats. Taken as a whole, however, garments not made of woolen cloth are not of great significance in the statistics for men's clothing. For women's clothing they are far more important, but nevertheless it is the woolen garments that are of prime moment for this industry as well as for the men's clothing trade.

In view of the greater importance of Schedule K for men's clothing, it was upon this that the present investigation laid particular stress. Much of what applies to the factory product is equally applicable also to the custom trade. In its upper range of prices the factory product competes actively with custom-made clothes, and the methods of making up garments in some branches of the custom trade are not very different from those employed in the making of the factory product.

CHARACTERISTICS OF THE CLOTHING INDUSTRY.

For a full understanding of the work done and the figures that follow, it is necessary to state here some of the peculiarities, features, and conditions of the garment trades.

A striking characteristic of this industry is its urban concentration. It is restricted to the large cities, and among the cities to a comparatively few. Not requiring extensive plants, it enjoys in the large cities the advantages of an abundant labor supply and special facilities which they afford for marketing the product. These more than offset the disadvantage of high city rents. Characteristic of this urban congestion of the industry is the fact that in 1910 New York alone produced one-half of the output of the combined men's and women's clothing industries. Its share of the men's trade is one-third of that for the country as a whole. Chicago, Baltimore, Philadelphia, and Rochester rank after New York in the order named. The five cities combined produced in 1910 over 70 per cent of the total product. The other important centers are Cincinnati, Boston, and St. Louis. Here are the census figures for the five leading centers:

TABLE 3.—*Men's clothing.*

CONCENTRATION OF CLOTHING INDUSTRY—VALUE OF PRODUCT IN THE UNITED STATES AND IN THE FIVE LEADING CITIES, 1905 AND 1910.

Locality.	Amount.		Per cent.	
	1905	1910	1905	1910
United States	$355,796,571	$485,677,493	100.0	100.0
New York	137,104,900	195,555,371	38.5	40.3
Chicago	53,230,436	83,735,584	15.0	17.2
Baltimore	19,565,474	29,236,539	5.5	6.0
Philadelphia	18,077,809	21,852,261	5.1	4.5
Rochester	14,948,703	18,878,508	4.2	3.9
Total for cities specified	242,927,322	349,258,263	68.3	71.9

In view of the high degree of concentration of the industry in the five cities named, and the fact that all grades of clothing are represented in their product, it was obviously sufficient to restrict the present investigation to these leading centers.

The cities named have to a considerable extent specialized in the character of their product. Chicago and Rochester are noted as centers for the high grades of clothing; New York, Philadelphia, and Baltimore as centers for the medium and cheaper grades. This statement is true in a general way, but in every city the product covers a large range in prices. Thus, though the product of New York is predominantly cheap and medium, a very large amount of high-grade clothing is there manufactured.

One phase of the industry is largely centered in Chicago—the "special order," or wholesale tailoring industry. This consists in making up garments for individual customers, garments sold through agencies or by "mail order."

Characteristic of the industry is the fact that it involves comparatively little investment in the form of plant or machinery. In comparison with the value of the output and the number of persons employed, a clothing establishment occupies but little space. This is one factor that makes possible urban location. The investment of a clothing firm is in stock of cloth and trimmings on hand, and in accounts receivable, or the stock sold but not paid for. The machinery used absorbs but little of the investment—in one notable instance of a large establishment conducting its own shops, the value of the machinery was set down at about 6 per cent of the net assets. The buildings occupied are usually rented. Manufacturing, or more particularly the making up of the garments, is in the great majority of the establishments done in whole or in part through contractors. This circumstance makes the question of depreciation on plants one of no significance for manufacturing costs. Even where liberal allowance is entered for depreciation, the effect on the total cost is practically negligible.

Both relatively and absolutely, the capital required is small as compared with the volume of business done. As a result the clothing industry is characterized by intensely competitive conditions. The number of establishments is very great, but the number doing a volume of business of $1,000,000 or more is comparatively small. In the main the larger houses are found engaged in the manufacture of higher grades of clothing. The multiplicity of small houses, and the difficulty of securing from inadequate records the data required for the investigation has made it necessary to secure the information to a great extent from the larger manufacturers. As those are usually the most successful houses, it is only fair to say that the resulting information may perhaps be somewhat more favorable as regards margins for profits than the results would show if complete data were obtained for the entire industry.

Owing to the relatively small investment required, the industry has remained largely in the hands of individuals and partnerships. Where corporations have been formed, they are in most instances essentially the same as firms, the stockholders being actively engaged in the business. Proprietors or officers are usually found in the more important supervisory positions. Often they are responsible for a large part of the sales. In the case of partnerships, no salaries are as a rule entered on the books; in the case of corporations, salaries are usually a means of dividing profits and have no necessary relation to the work of the recipient or the volume of business. This introduces difficulties in trying to distinguish between costs and profits, the one being overstated in the case of corporations, the other in the case of firms.

In the method of carrying on the manufacturing processes, the clothing industry is characterized by extensive use of the contract system. Particularly in New York, the typical wholesale clothier can hardly be considered a manufacturer. He purchases the cloth and trimmings. The examining and sponging are attended to for him by an independent concern at a fixed price per yard. The material is cut up on his premises, but the actual work of making up the garment is let out to contractors at a fixed price. The contractor receives the cut-up material and returns the completed garment. The contractor rents his own factory and employs his own help. The contract system is most largely used in New York, but it exists in every clothing center. Firms engaged in the production of higher grades of garments usually manufacture most of their product in their own shops. Few of the firms visited in this investigation, however, made up all of their output in their own establishments. While the contract system is used most extensively in the production of the cheaper grades of clothing, it is employed in the manufacture of all grades of garments. Under the circumstances, it is apparent how difficult is the problem of securing accurately the entire and detailed labor cost involved in the manufacture of clothing and how in some cases the only figures available give the total expense connected with the conversion of the material into the finished product.

The factory output which goes under the general term "men's clothing" covers so wide a range of product, that it is difficult to standardize or measure in terms of any units. Most houses produce suits and overcoats. Some specialize in overcoats or in pants. Others specialize in youths' or in boys' clothing, and some manufacture raincoats, fancy vests, and bathrobes in addition to regular clothing.

Not only is there a variety in the products, but under suits and overcoats there are found garments varying widely in price. Generally houses are classified according to their production under such headings as cheap, medium, and high grade. The first class would include garments sold at wholesale for less than $8; the second would include garments sold for as much as $12 or $13. High grade would sell for above these figures. Each of these groups comprises a variety of prices for the same type of garments. For example, a house producing largely cheap garments—suits selling for less than $8 wholesale—may also sell garments for as much as $10 or $12. There are no definite lines of demarcation.

Moreover, garments sold at the same price vary widely in the cost of the cloth used or trimmings, and in the character of the workmanship and in the style. Different combinations of cloth, linings, and labor are made according to the taste and policy of the manufacturer, style, and season. For purposes of comparison emphasis has in this investigation been laid on the regular sack suit.

The manufacturers' cost in the clothing industry may be arranged under the following heads in the order of their importance: (1) Cloth, (2) manufacturing or making up of the garment, (3) trimming, (4) selling expenses, (5) general expenses. The largest item, except to a small group of manufacturers of very high grade clothing, is the cloth cost. This accounts for approximately two-thirds of the material used, trimmings being the general head for their other materials. These are analyzed elsewhere.

The manufacturing expense includes the expense of the cutting room and of the factory. Where there is no factory, the wholesale clothiers' problems are much simplified by the employment of contractors. Where there is a factory, the overhead expense for supervision, technical and clerical, and for rent and general factory expense, forms a very large addition to the cost in wages of employees who work on the garments.

Selling expense constitutes a large element in the wholesalers' cost. These take the form of the expense of salesmen in commissions, salaries, and traveling expenses, and of advertising. The latter is dependent on the policy of the house, some houses reporting a very high cost of advertising, and others spending practically nothing. In all houses, however, selling is largely done through salesmen. Commissions range from 5 to 7 per cent. It is only where the partners are themselves salesmen, that the cost of selling is reduced to a low figure. One reason for the high cost of selling is the fact that the wholesale clothier deals directly with the retailer, jobbing houses being but little used. The general expenses are in no way peculiar to the industry, and require no particular comment.

The clothing industry, as at present conducted, is but little concerned with foreign trade. The cloths used are almost entirely of domestic make. Most houses reported using exclusively American cloths. Only those engaged in the production of high grade clothing reported using foreign cloths, and these estimated their purchases of foreign cloth at no more than 3 or 4 per cent. As compared with the domestic output of the industry, imports of wearing apparel are negligible, and the same may also be said of the exports of American clothing.

HOW CLOTHING IS MADE.

Next comes the consideration of the production of men's clothing and the detailed processes that enter into it. So far as possible, the steps taken in the process of manufacture are here followed in the order in which they occur. The cloth, and the trimmings to a less degree, are purchased from the mills; a small proportion is bought through agents or jobbing houses. In New York, Baltimore, and Philadelphia there seems to be no freight charge; in Chicago the freight on material amounts to about one-half of 1 per cent of the material cost. In Rochester the cost of freight is somewhat less.

Cloth received is examined and sponged. This is done directly by the manufacturer in the large establishments where the wholesale clothier has his own shops. In the smaller establishments cloths are sent to sponging houses for examination and for shrinking. This work is done at so much per yard, the usual charge being 1 cent. Cloth found imperfect is returned and such returns form a considerable per cent of the total purchases.

In the process of sponging there is a shrinkage, varying with the character of the material and the process employed. Some houses consider the shrinkage as negligible, others figure it at as much as 3.5 per cent. The cost of sponging and examining is figured as low as 2 cents and as high as 10 cents per suit. In no case, however, is it a very serious item of cost.

With the material prepared, the next step takes place in the cutting and trimming departments of the manufacturer. All manufacturers cut their cloth on their own premises, and arrange the cloth and the appropriate trimmings in bundles to be sent to the factory of the establishment or to the contractor for making.

Of the essential materials that enter into the garment, most important by far is the cloth. In the ordinary sack suit there is used between 3¼ and 3⅔ yards of cloth, the cloth being 54 to 56 inches wide. The amount used varies according to the pattern and according to style. The usual yardage is 3½ yards, of which approximately 1¾ goes into the coat, 1⅓ into the pants, and about two-fifths into the vest. The short spring and fall overcoats take 2¼ to 2½ yards; a long overcoat is calculated at 2¾ to 3 yards. Subsequent analysis will show the importance of the cloth cost in the total cost of the garment. It is sufficient to say here that the cost of cloth is on the whole the largest single item in the manufacturers' cost. It is only when high-grade clothing is reached that this item of cost is exceeded by the manufacturing expense.

The bulk of the cloths used in ready-made clothing sell net at between 65 cents and about $1.50. Both lower and higher priced cloths are used. Details of the relation of the cost of cloth to the price of the garment are given in exact figures in a later table.

Besides cloth there enters into the production of clothing a great variety of material—woolen, cotton, and linen. An analysis of a coat made by a New York firm to sell at $10.80 net and for which the consumer pays between $15 and $20 shows that under the head of trimmings between 20 and 25 items enter into the manufacture of the coat, 15 into a pair of pants, and 12 in a vest. Eliminating such items as are the same in each garment, there are included in the trimmings of a popular priced suit, about 40 items, different either in kind or in price. Of these only a few are significant from the point of view of cost of the finished product.

The largest of these items is linings. Under this head the most important are the linings used for the inside of a coat (exclusive of the sleeves) and for the back of the vest. In most of the clothing, particularly in the medium and high grade suits, this lining is woolen, serge, alpaca, or mohair. From 2 to 2⅛ yards are used, about one-half a yard being used for the vest, the rest for the coat. In the more popular priced overcoats a woolen lining is used, about 2¾ yards being required. The range of prices for such linings is from 30 cents to 50 cents per yard, some running as high as 75 cents. Thus in a suit selling for $11.66 net, a house doing an extensive business put in a body lining costing 75 cents. Another house puts in a suit selling for $10.80 net a lining costing 65 cents. This lining is an important item in determining the cost of woolens entering into the garment, and may be estimated at between 5 and 6 per cent of the total cost of the garment. To considerable extent such linings are imported. In cheaper garments woolen linings compete with cotton linings.

The only other woolen material used is the woolen flannel forming the under collar. This costs less than 5 cents in a popular priced suit.

The other linings are of cotton and are used for the sleeves, the inside of the vest, and the pants. The other materials employed are for interlinings, except the buttons, silk, and thread. Most important here is the pad of haircloth and canvas. In better grade garments, linen canvas is used, in cheaper grades cotton. The remaining interlining materials are pocketing, silesia, canvas, wigan, tape, etc. As none of these items are at all affected by Schedule K, it is not necessary to go into details.

The trimmings rank third in the manufacturer's cost and vary with the price of the garment and the policy of the manufacturer, some houses emphasizing the cloth, others the trimmings. The same kind of trimmings is likely to be used in suits varying in price within considerable limits.

All manufacturers visited in this inquiry cut the material and lining on their premises. The cutting cost varies. In cheap and medium priced clothing, the cutting is done by electrical knives, operating on a number of layers of material. In higher priced garments the cutting is done by shears, only one or two layers of cloth being cut at one time. The cost of cutting varies from as little as 8 cents to as much as 75 cents or $1 per suit. This includes the trimming—that is, the cutting and arranging of the trimmings that go with the particular suit.

From the cutting room, the material arranged in lots and bundles is sent to the factory of the establishment or to its contractors. Coats, pants, and vests are made in shops specializing in the production of but one class of garments. Overcoats are, however, frequently made up in the same shops as coats. The work is done under varying conditions with wide differences in the subdivisions of the manufacturing processes and in the character of the workmanship required. The details are elaborately described in the report of the Bureau of Labor on Men's Clothing.

Owing to the large extent to which clothing is made up under the contract system it is often impossible to determine the exact labor cost from the records of the manufacturers. The contract price includes overhead manufacturing expenses and the contractor's profit. Both in the manufacturer's shop and where the work is done under contract the labor cost varies, in general with the price of the garment. The greatest variation is, however, in the cost of the coat. Even here the same price per coat is paid on suits differing in price. Under the contract system the manufacturing cost is controlled by assigning different grades of garments to different contractors. Establishments having their own shops, to a considerable extent, follow a similar plan by specializing different shops for particular grades of garments. In establishments conducting their own shops there is in addition to the direct labor cost an overhead factory expense equal to between 20 and 30 per cent of the wages paid. This is for salaries of foremen, superintendents, clerks, miscellaneous labor, rent, light, heat and power, and similar items. Where the contract system is employed, the overhead expense is equal to about 10 per cent of the amount paid out for wages and for contract work.

The garments are returned from the factory to the stock room for examination, busheling, and labeling. The finished product is then ready for shipment to the retailer.

SCOPE AND METHOD OF INQUIRY.

The investigation of the board concerned itself with the industry in the five leading centers—New York, Chicago, Baltimore, Philadelphia, and Rochester. These five cities in 1910 produced approximately $350,000,000 out of a total output for the entire country of $485,000,000. Their proportion was thus not far from three-quarters. In these centers serviceable data were obtained in detail from houses with a combined output of approximately $70,000,000 net. This information was secured from some 40 houses.

A very much larger number of houses were visited. From some of these only partial information could be obtained, from others the data required for this investigation could not be secured, chiefly on account of the inadequate character of the records—sometimes because the peculiar character of the business made it undesirable to include the data under standard wholesale clothing.

The largest number of houses studied was in New York. Owing to the smaller average size of the houses here, the volume of the output for the establishments taken forms approximately 10 per cent of the total output of the city. In the other cities the output of the houses considered in any center is from one-sixth to over one-half of the total product in their respective cities as reported by the census for 1910. The combined volume of the output for the houses furnishing desired data is more than one-fifth of the clothing produced in the five great clothing cities and one-seventh of the entire output for the country.

For the wholesale clothing industry proper, or that portion of it concerned with the production of woolen outer garments, the proportion made by the houses studied is much higher. The census figures include under men's clothing working clothes and clothing novelties. In general such houses were not considered in this investigation. Similarly, in order to secure uniformity of treatment in the above figures, there were not included any establishments which manufacture primarily for their own retail trade. Emphasis was laid on the regular wholesale clothing houses in order to secure as far as possible uniform data for all centers. Owing to the importance of children's clothing in New York, attention was given there to that branch of the industry.

The investigation sought to obtain data for the industry in two ways. In the first place an analysis was made of the manufacturer's costs, as revealed by his books for a year's volume of business. In the second place, costs were obtained for the production of typical suits, pants, and overcoats.

Special attention was given to the data on the year's volume of business. The figures on the basis of the year show more adequately the relative importance of the cloth and material cost as compared with the selling price than any calculations based on typical garments. In such annual figures allowance is made for the fluctuations in the cost of material and of labor and for the varying discounts given and taken. The relation of overhead costs to direct expense can be clearly established only on the basis of a year's experience. Such figures are necessarily taken from the books and reflect actual costs, not calculations.

The data for the year are in the main for 1910. In a few instances, where strikes had made that year abnormal, the data for the year 1909 were taken.

In securing the data from the books, the items sought were principally as follows: The material cost, distinguishing (*a*) cloth from (*b*) trimmings; (*c*) the direct labor cost; (*d*) the overhead factory costs, showing details for wages and salaries, rent, depreciation, and other expenses; (*e*) selling costs; and (*f*) general expense. These items were on the side of expense. On the revenue side the net sales for the year were secured.

Owing to the differences in methods of bookkeeping, it was not always possible to secure all the details desired. Not all houses could segregate the cost of their cloth from that of trimmings. The division between labor and overhead manufacturing expense, and again between general expense connected with the factory and the business as a whole, was often made on estimate, so that the totals in such cases are more accurate than the details. Under selling expense was included only items clearly applicable to the sales, such as the expense of salesmen, advertising, and shipping expense. The figures under that head are therefore the minimum cost of effecting sales.

Costs were obtained on specimen garments. Agents were instructed to get the figures for garments typical of the product of the firm visited. Emphasis was laid on the three-piece sack suit, which is the garment most nearly standard. Costs were secured also on overcoats and pants. The items emphasized here were cloth cost, trimming cost, and the cost of the various operations in the factory, or the total labor cost, showing separately the expense of sponging and examining, cutting and trimming, and making. The data for specimen garments are generally for the year 1911; in a few cases they are for 1910.

The figures on specimen garments given in this report are in most cases substantiated by data for a year's business. In some houses the data are average figures calculated on a year's experience. In others they are estimated, being the same estimate or calculation which the establishments use in calculating the prices to be charged by salesmen. In such cases they are likely to overstate costs and must be used in connection with the annual figures. Where overhead expense has been added to the cost of material and direct labor, the ratios used have been taken from the yearly figures.

METHODS OF PRESENTATION.

The data secured has been studied with a view to indicating primarily the importance for the clothing industry of the following items:

1. Cloth and other woolen fabrics.
2. Total material cost.
3. Conversion cost (labor and factory expense).

A complete analysis of the data, however, requires the statement of the other items of expense, viz:

4. Selling costs.
5. General expense.

It reveals also a figure which may with certain restrictions be called

6. Profits.

Not all the schedules secured contained all the data required. Some were too imperfect to be of use, others were affected by abnormal conditions peculiar to the firm. In some cases the total figures were secured, but no adequate analysis could be obtained.

Difficulty was experienced in the case of a number of firms in securing a segregation of cloth and trimmings costs, many firms carrying no separate accounts for those items. The calculations showing the relative importance of these items for various grades of clothing are based on the data supplied by the establishments furnishing such information. In the calculation for cloth cost, there has been taken out the amount realized from rags or clippings sold. On the whole the item is slight. The information on these points is supplemented by a calculation of the relative importance of the different elements of cost, based on the data furnished for specimen garments.

The total material cost could be secured from many firms, where the details could not be secured. In a few cases the amount given for material cost includes also some adjustment for changes in the stock of finished goods. This is not, however, of sufficient moment to disturb the general significance of the figure.

In using the data, it is preferable to lay emphasis on the total conversion cost, rather than on the distinction between direct labor and overhead manufacturing expense. Accounting in the clothing industry is very imperfect, and the distinction between direct and indirect labor is not often made on the books. At best it rests for the most part on estimate. More disturbing a factor is the wide prevalence of the contract system. Many firms do not distinguish on their general books wages paid to employees from payments to contractors. The contract price includes such elements as superintendence, rent, and other expense, and is therefore not to be regarded as wages. The relative proportion of contract work and work done in the factory of the establishment is most varied. In the tables drawn up, payments to contractors have been treated in the same way as wages. In such cases, distinction made here between direct labor and overhead expense obviously loses significance, and only the total figure for conversion cost can be relied upon.

The item of greatest significance is the total cost of the manufactured garment at the factory. This figure would be the basis of comparison for American and foreign costs. Other expenses would presumably have to be incurred by any foreign producer, who sought to place his product with American consumers. He would have to undergo similar expenses in employing salesmen, in advertising, and in conducting a general office.

From another point of view the factory cost is the most significant item. The total expenditures for cloth and conversion expense, show a most remarkable uniformity for the different producers. This is easily intelligible. The manufacturer deals here with factors over which he has, comparatively speaking, only limited control, the price paid for his materials, and the price paid for labor. The expenses to be incurred in making sales are more readily shaped according to the manufacturer's policy, and accordingly show great variation. The same applies in a lesser degree to the general expense which is incurred by the establishment as a whole and which can not be readily apportioned to one or another division of the business.

Selling costs are here strictly defined so as to include only such items as are directly connected with sales. These are the salaries, commissions and traveling expenses of salesmen, advertising and the minor items connected with shipping and collections. The most variable item here is, of course, advertising. Some houses spend as much as 4 and even 5 per cent of their net receipts from sales for advertising, many spend substantially nothing. The expense of salesmen varies very widely, largely because some establishments have a large house trade, or effect most of their sales through members of the firm. As a result, what appears as expense in one case, appears as profits in another.

General expense calls for little comment except that under this head corporations often include large amounts nominally for salaries, actually for a division of profits. As the majority of concerns dealt with in this investigation are firms, in which no allowance is made for partners' salaries, for purposes of uniformity, officers' salaries are ignored under expenses and treated as profits.

From general expense there was further omitted allowances for interest on capital of the partners, or on the bonds of corporations, or on loans. The reason for this is that such items have no direct relation to the volume of business, but are dependent on the extent and character of the investment. No attempt was made in this investigation to find out the relation of profits to the investment. An attempt in this direction would have been attended with too many difficulties. Similarly no allowance was made under general expense for losses through bad debts. This, too, is an item that has no direct relation to the volume of business, and shows wide variation among different houses. On the whole it is not of much significance. The other charges under the head of general expense require little comment. The chief items are rent for general office, stock and show rooms; wages and salaries of the office staff and general employees; stationery, and miscellaneous items.

In presenting the data the principle of classification employed is the grade of output. Classifications according to cities is neither desirable nor feasible. The classification adopted is attended with considerable difficulty, owing to the absence of clear demarcations. As already noted, the output of firms covers often a wide range of prices. The average price of garments as stated by the firm or as calculated from information given as to the number of garments sold, has been used as a guide. On this basis houses have been grouped according to the average price of garments as follows:

1. $8 or less.
2. $8 to $15.
3. $15 and over.

The last group subdivides itself into two subgroups, differentiated not so much in the average price of their product, as in the difference in emphasis on style and workmanship as compared with the material.

A classification along the lines of these groupings is in part also a classification along geographical lines. Thus Rochester and Chicago firms are found principally under the second and third heads, Philadelphia and Baltimore under the first two heads, New York is represented under each division, but it is more largely represented under the first and second groups. Outside of these groupings the special order houses and the manufacturers of children's clothing are dealt with separately.

For comparison all items of expense are reduced to ratios of the net selling price, to facilitate the handling of the information. This follows trade usage, in which calculations are related to selling prices rather than costs. The absolute amounts are given in tables where this can be done without revealing the source of information, and also their equivalents stated as per cents of the selling price.

The data secured are summed up in the tables printed below.

ANALYSIS OF COSTS, ON THE BASIS OF THE YEARLY FIGURES ACCORDING TO GRADES OF CLOTHING.

The tables analyzing costs on the basis of data for a year's business show for each grade of clothing the relative cost of cloth, trimmings, manufacturing or conversion expense, selling expense, general expense, and profits as defined above. As printed below they give the totals for different grades of clothing; the details for establishments can not be given without danger of revealing confidential information. In Table 4 the data are for all wholesale houses here considered. In Table 5 the data are for those houses whose records showed separately the cost of cloth and of trimming.

Convenient summaries of these tables will be found in connection with the analysis of the data here presented.

TABLE 4.—*Cost of manufacturing clothing—mens' clothing, 1910.*

[Data for wholesale establishments visited.]

Items.	Cheap ($8 and under).[1]	Medium ($8 to $15).[1]	High grade ($15 and over).[1]		Specialty.	Children.	Special order.	Total.
			Class A.[2]	Class B.[2]				
Net sales	$8,792,819	$16,399,732	$25,190,729	$8,218,207	$1,696,657	$3,382,373	$5,262,169	$68,942,686
Material cost	5,117,003	9,008,067	13,603,273	3,762,859	867,722	1,924,918	2,355,714	36,639,556
Manufacturing cost:								
Direct labor [3]	1,830,197	3,919,909	6,046,150	2,198,907	189,722	817,791	1,244,809	16,247,485
Factory expense	113,605	509,491	1,247,374	428,061	103,059	100,896	214,387	2,716,873
Total manufacturing expense	1,943,802	4,429,400	7,293,524	2,626,968	292,781	918,687	1,459,196	18,964,358
Total cost of manufactured clothing	7,060,805	13,437,467	20,896,797	6,389,827	1,160,503	2,843,605	3,814,910	55,603,914
Increase or decrease during year in stock of finished goods	+224,821	−10,160	−526,700	−176,061	+131,076	−3,179	....	−360,203
Cost of clothing sold	7,285,626	13,427,307	20,370,097	6,213,766	1,291,579	2,840,426	3,814,910	55,243.711
General expense:								
Selling expense	376,870	1,053,267	1,594,342	584,292	206,021	178,025	621,063	4,613,880
Overhead expense	276,327	611,630	939,607	328,966	93,217	152,890	404,594	2,807,231
Total general expense	653,197	1,664.897	2,533,949	913,258	299,238	330,915	1,025,657	7,421,111
Total cost	7,938,823	15,092,204	22,904,046	7,127,024	1,590,817	3,171,341	4,840,567	62,664,822
Profit [4]	853,996	1,307,528	2,286,683	1,091,183	105,840	211,032	421,602	6,277,864

[1] For average price of garment sold.

[2] These are two classes of the same grade of clothing. They are distinguished not so much by selling price as by the relative emphasis on cloth and material cost (Class A) as contrasted with workmanship and the consequent labor cost (Class B).

[3] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

[4] Profit is used here to denote the balance after deducting the items specified. It does not represent net profit as from the amount shown must be deducted such items as salaries of officers, compensation for services of members of firm, interest on capital invested or borrowed, and bad debts.

Table 4 presents the data for houses disposing of $70,000,000 of clothing a year. This is the net amount received after deducting all discounts and allowances. For most houses the discount, which is often as high as 10 per cent, would average about 7 per cent. A few houses sell net. The volume of sales shown for any of the different classes of clothing is not to be taken as representative of its importance in the industry. Thus the relative importance of cheap clothing is probably greater than would appear from this table; on the other hand, the importance of high-grade clothing is undoubtedly less. Owing to the fact that very much cheap clothing is made by small firms, keeping inadequate records, it was much more difficult to secure adequate information for a large volume of cheap clothing than for high-grade clothing. The latter is manufactured more extensively by large establishments keeping records from which the necessary information was readily obtainable.

Table 5, printed below, is restricted to establishments whose records showed specifically the cost of cloth used during the year in manufacturing. The data are for establishments selling $50,000,000 of clothing a year. This table allows for a determination of the relative importance of cloth among the costs of the manufacturer. While covering a smaller volume of product, the data presented in this table are ample to show the importance of cloth for every grade of clothing produced.

TABLE 5.—*Cost of manufacturing clothing—Men's clothing—1910.*

[Data for establishments showing separately cost of cloth and cost of trimmings.]

Items.	Cheap ($8 and under).[1]	Medium ($8 to $15).[1]	High grade ($15 and over).[1]		Children.	Special order.	Total.
			Class A.[2]	Class B.[2]			
Net sales	$7,049,554	$7,335,919	$25,190,729	$5,659,307	$1,525,323	$3,394,483	$50,155,315
Material cost:							
Cloth	3,199,386	2,765,636	8,803,488	1,473,272	535,402	1,127,761	17,904,945
Trimmings	935,810	1,284,081	4,745,592	877,212	262,008	332,108	8,436,811
Freight[3]	....	631	54,193	16,875	1,338	4,693	77,730
Total material expense	4,135,196	4,050,348	13,603,273	2,367,359	798,748	1,464,562	26,419,486
Manufacturing cost:							
Direct labor[4]	1,428,717	1,738,649	6,046,150	1,578,977	392,526	876,517	12,061,536
Factory expense	76.971	247,324	1.247,374	278,061	44,141	137,650	2,031,521
Total manufacturing expense	1,505,688	1,985,973	7,293,524	1,857,038	436,667	1,014,167	14,093,057
Total cost of manufactured clothing	5,640,884	6,036,321	20,896,797	4,224,397	1,235,415	2,478,729	40,512,543
Increase or decrease during year in stock of finished goods	+210,721	−141,522	−526,700	+85,439	−3,179	....	−375,241
Cost of clothing sold	5,851,605	5,894,799	20,370,097	4.309,836	1.232,236	2,478,729	40,137,302
General expense:							
Selling expense	272,536	499,726	1,594,342	492,792	118,100	529,635	3,507,131
Overhead expense	215,258	283,607	939,607	182,776	79,767	291,260	1,992,275
Total general expense	487,794	783,333	2,533.949	675.568	197,867	820,895	5,499,406
Total cost	6,339,399	6,678,132	22,904,046	4,985,404	1,430,103	3,299,624	45,636,708
Profit[5]	710,155	657,787	2,286,683	673,903	95,220	94,859	4,518,607

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[1] For average price of garment sold.

[2] These are two classes of the same grade of clothing. They are distinguished not so much by selling price as by the relative emphasis on cloth and material cost (Class A) as contrasted with workmanship and the consequent labor cost (Class B).

[3] Data not shown completely under this heading. Some firms charge freight to general expense; others add it to cost of material.

[4] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

[5] Profit is used here to denote the balance after deducting the items specified. It does not represent net profit, as from the amount shown must be deducted such items as salaries of officers, compensation for services of members of firm, interest on capital invested or borrowed and bad debts.

Attention is called to a few of the items in the above tables. In Table 4 freight is included in material cost. In Table 5 it is shown separately where reported. The data on this point is not complete, some houses adding it on to the cost of material; others entering it under general expense. Owing to the fact that the volume of the clothing produced and that sold in the given year is not identical, Tables 4 and 5 show separately the cost of stock manufactured, and the cost of the stock sold. The latter figure is obtained by adding to the stock manufactured in the year, or subtracting from it the difference between the stock of finished goods (including goods in process) at the beginning of the year and that at the close. It is necessary to emphasize again the meaning of the term profit as here used. It is a figure arrived at before deducting salaries of officers or any compensation for the services of partners, and before making any allowances for bad debts, or for interest on the capital invested or on money borrowed.

To facilitate the study of the information contained in Tables 4 and 5 the data contained in them are in the following tables expressed in comparable terms, viz, as percentages of the selling price. In other words, there is here shown the disposition of the receipts from the sale of a year's production—how much goes for cloth and for other materials; how much for labor and for factory expense; how much is spent in commissions to salesmen, in advertising, and in other incidental selling expense, and in the general expense of the business; and what remains to the proprietors or stockholders to recompense them for their own personal services, and for the capital they have put in or borrowed, and for incidental losses. These items of expense may be compared for the different grades of clothing.

Table 6 and Table 7 are complementary tables to Tables 4 and 5, respectively. Table 6 gives the data for all wholesale houses here studied; Table 7 gives the data for all houses showing separately the cost of cloth and the cost of other material used in the industry.

TABLE 6.—*Cost of manufacturing clothing, 1910—Data for wholesale establishments visited.*

[Items of cost expressed as per cents of net selling price.]

Items.	Cheap ($8 and under).[1]	Medium ($8 to $15).[1]	High Grade ($15 and over).[1]		Specialty.	Children.	Special order.	Total.
			Class A.[2]	Class B.[2]				
Net sales	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Material cost	60.1	54.9	52.7	44.5	56.9	56.9	44.8	52.8
Manufacturing cost:								
Direct labor [3]	21.5	23.9	23.3	26.0	12.4	24.2	23.7	23.4
Factory expense	1.3	3.1	4.9	5.1	6.8	2.9	4.0	3.9
Total manufacturing expense	22.8	27.0	28.2	31.1	19.2	27.1	27.7	27.3
Total cost of manufactured clothing [4]	82.9	81.9	80.9	75.6	76.1	84.0	72.5	80.1
General expense:								
Selling expense	4.3	6.4	6.3	7.1	12.1	5.3	11.8	6.7
Overhead expense	3.1	3.7	3.7	4.0	5.5	4.5	7.7	4.1
Total general expense	7.4	10.1	10.0	11.1	17.6	9.8	19.5	10.8
Total cost	90.3	92.0	90.9	86.7	93.7	93.8	92.0	90.9
Profit [5]	9.7	8.0	9.1	13.3	6.3	6.2	8.0	9.1

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[1] For average price of garment sold.

[2] These are two classes of the same grade of clothing. They are distinguished not so much by selling price as by the relative emphasis on cloth and material cost (Class A) as contrasted with workmanship and the consequent labor cost (Class B).

[3] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

[4] In making these percentage tables it has been assumed that the elements of cost in stock of finished goods brought forward from the preceding year is the same as in stock manufactured during the year. From the details of cost for goods manufactured during the year there is added or subtracted a proportional amount for increase or decrease of stock as shown by the inventories of finished goods at the beginning and close of the year. In this way an adjustment is made between the output for the year in manufactured garments and sales for the year.

[5] "Profit" is used here to denote the balance after deducting the items specified. It does not represent net profit, as from the amount shown must be deducted such items as salaries of officers, compensation for services of members of firm, interest on capital invested or borrowed, and bad debts.

Analysis of the information obtained in this investigation reveals the fact that in all the houses studied the cost of materials entering into clothing is equal to 53 per cent of the selling price. The expense connected with converting the material into garments absorbs over one-fourth of the amount for which these are sold. As the garment leaves the factory they have cost the manufacturer 80 per cent of the price for which they are sold. Marketing the product absorbs 7 per cent in commission to salesmen, advertising, and incidental selling expenses. The general expenses of running the business absorbs 4 per cent more. The manufacturer has left about 9 per cent from which he may deduct losses through bad debts and reimburse himself for services of partners or officers and for the capital invested or borrowed for the business. This figure for profit, it should be borne in mind, is not a percentage of either capital or investment, but of net receipts for the year—receipts with all discounts and allowances out.

The cost of cloth used in making men's clothing is the additional information essential to this investigation shown in the following table. The data are for houses that show separately the cost of cloth and the cost of other material (see Table 5, to which this table corresponds), and the records of which are more adequate for the purpose of this investigation.

TABLE 7.—*Cost of manufacturing clothing 1910—Data for establishments showing separately cost of cloth and cost of trimmings.*

[Items of cost expressed as per cents of net selling price.]

Items.	Cheap ($8 and under).[1]	Medium ($8 to $15).[1]	High grade ($15 and over).[1]		Children.	Special order.	Total.
			Class A.[2]	Class B.[2]			
Net sales	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Material cost:							
Cloth	47.1	36.8	34.1	26.6	35.0	33.2	35.4
Trimmings	13.7	17.1	18.4	15.8	17.1	9.8	16.6
Freight [3]	......	......	.2	.3	.1	.1	.2
Total	60.8	53.9	52.7	42.7	52.2	43.1	52.2
Manufacturing cost:							
Direct labor [4]	21.0	23.2	23.4	28.5	25.7	25.8	23.8
Factory expense	1.2	3.3	4.8	5.0	2.9	4.1	4.0
Total manufacturing expense	22.2	26.5	28.2	33.5	28.6	29.9	27.8
Total cost of manufactured clothing [5]	83.0	80.4	80.9	76.2	80.8	73.0	80.0
General overhead expense:							
Selling expense	3.9	6.8	6.3	8.7	7.8	15.6	7.0
General expense	3.0	3.9	3.7	3.2	5.2	8.6	4.0
Total	6.9	10.7	10.0	11.9	13.0	24.2	11.0
Total cost	89.9	91.1	90.9	88.1	93.8	97.2	91.0
Profit [6]	10.1	8.9	9.1	11.9	6.2	2.8	9.0

[1] For average price of garment sold.

[2] These are two classes of the same grade of clothing. They are distinguished not so much by selling price as by the relative emphasis on cloth and material cost (Class A) as contrasted with workmanship and the consequent labor cost (Class B).

[3] The data is not shown completely under this head, some firms charging freight to general expense, others adding it to the cost of the material.

[4] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

[5] In making these percentage tables it has been assumed that the elements of cost in stock of finished goods brought forward from the preceding year is the same as in stock manufactured during the year. From the details of cost for goods manufactured during the year there is added or subtracted a proportional amount for increase or decrease of stock as shown by the inventories of finished goods at the beginning and close of the year. In this way an adjustment is made between the output for the year in manufactured garments and the sales for the year.

[6] Profit is used here to denote the balance after deducting the items specified. It does not represent net profit as from the amount shown must be deducted such items as salaries of officers, compensation for services of members of firm, interest on capital invested or borrowed, and bad debts.

The cost of cloth entering into men's clothing is equal to more than one-third of the selling price, the cost of the other material is one-sixth. The total material cost is over one-half. The other details of cost revealed by this table are the same as in the foregoing. The close conformity of the percentages for the items of expense in the two tables, make it very evident that the establishments represented in this table are characteristic of all the establishments investigated, and that the cloth costs as found here apply grade for grade to the industry as a whole.

More significant than these generalizations, are differences in the relative importance of various elements in cost for different grades of clothing. An analysis of the information secured for various classes of garments yields these general results:

(1) The material cost forms a larger proportion of the selling price in lower grade clothing than in higher priced clothing.

(2) The cloth cost similarly forms a higher per cent of the selling price in cheaper clothing than in the more expensive varieties.

(3) In compensation for the lower relative cost of cloth in the finer grades of clothing, better trimmings are used and more labor.

(4) Except in very high grade clothing, the factory cost of the product, i. e., expenditures for cloth, trimmings and for labor and other factory expenses are equal to approximately 80 per cent of the selling price. For a small group of manufacturers of very high grade clothing the factory cost is about 75 per cent. It appears that in cheaper clothing the margin between selling price and factory cost is somewhat lower than in higher priced clothing.

From the point of view of the present investigation the most significant facts revealed are those showing the cloth cost. This varies from 49.6 per cent for an establishment in which the production of pants was very important, and 46.5 per cent for a house manufacturing only suits, to 26 per cent for houses producing the highest grades of clothing. In only a very few houses was the cloth cost less than one-third. These houses produced about one-sixth of the volume of clothing here studied, but this represents an undue proportion of such clothing made. For the bulk of clothing the cloth cost is nearer to 40 per cent of the amount realized from sales.

The cloth cost does not represent the total cost of the woolens entering into the manufacture of a suit. Next to the cloth, the woolen lining is the most important item in costs. It appears that woolen linings are used in suits sold from about $7.50 and up wholesale. From the data available on the cost of linings, and the yardage used, the cost of such linings per suit would be equal to fully from 5 to 6 per cent of the wholesale selling price. The average woolens cost of clothing may therefore be estimated at about 40 per cent for the total value considered and about 45 per cent for the more popular grades of clothing sold.

CLOTH COST.

Grouping the establishments according to the grade of clothing, the following are the significant features: For manufacturers whose product sells for $8 or less wholesale, the total material cost is about 60 per cent of the selling price, the cloth cost is in excess of 40 per cent. Manufacturers in the grades above this, whose product sells at from $8 to about $15, report a material cost of about 55 per cent, and a cloth cost of from 35 per cent to 40 per cent. Manufacturers of high-grade clothing report a slightly lower material cost and the cloth cost is approximately 35 per cent. A small subgroup here reports a material cost of 42 per cent, and a cloth cost of between 26 per cent and 29 per cent.

The importance of the results revealed by this analysis lies in the fact that in the popular lines of clothing—suits and overcoats selling at retail for less than $20 and $25—the material used costs between 50 per cent and 60 per cent of the net wholesale selling price, and the cloth used absorbs fully 40 per cent of such price. The clothing to which this generalization applies constitutes the bulk of the clothing sold.

Less attention need be given to the items of trimmings. On all clothing trimmings absorb 14 per cent to 18 per cent of the selling price. In high-grade clothing selling on the average for about $15 to $16 wholesale, the ratio is 18 to 19 per cent. Relative to the cost of cloth, however, the cost of trimmings increases with the cost of the garments.

Factory labor and factory expenses are equal to about 22 per cent on cheaper grades of garments, i. e., garments selling wholesale at an average of $8 or less. In the grades above, or garments selling at wholesale for $10 to $15, the factory cost is over 25 per cent. For high-grade clothing it is nearer to 30 per cent. In these percentages of the selling price here given as expended in the factory, there are included not only wages, but also salaries, rent, factory supplies, and other incidental expenses. While the distinction between direct labor and factory expense as used here is not too significant, the increasing ratio for factory expense reflects the fact that the higher grade garments are made in inside shops, and involve a greater expense for supervision, whereas cheaper garments are more extensively contracted out and involve a smaller general expense on part of the wholesaler.

For special-order clothing the situation is different from that for regular clothing. There the total material cost for the houses taken is between 43 and 48 per cent, the cloth cost is one-third of the selling price. The ratios on children's clothing do not seem to be different from men's clothing, taken as a whole.

In the details of costs, the figures showing the manufacturing cost of clothing—the expenditures for material and for conversion costs—are of particular interest. They vary less for the different classes of garments than the other elements of cost and show for different types of establishments a fairly constant margin of about 20 per cent from which selling costs, general expenses, and profits must be taken. The following tables show the relative importance of cloth and material cost, on the basis of the cost of the product as it leaves the factory, or reaches the manufacturer from his shops, or from contractors. Table 8 gives data for all establishments investigated; Table 9 for establishments reporting the cost of cloth used during the year.

TABLE 8.—*Cost of manufacturing clothing, 1910, factory costs (material, direct labor and factory expense)—Data for all wholesale establishments.*

[Items of cost expressed as per cents of total factory costs.]

Items.	Cheap ($8 and under).[1]	Medium ($8 to $15).[1]	High grade ($15 and over).[1]		Specialty.	Children.	Special order.	Totals.
			Class A.[2]	Class B.[2]				
Total cost, manufactured clothing	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Material cost	72.5	67.0	65.1	58.9	74.8	67.7	61.8	65.9
Manufacturing cost:								
Direct labor [3]	25.9	29.2	28.9	34.4	16.3	28.8	32.7	29.2
Factory expense	1.6	3.8	6.0	6.7	8.9	3.5	5.5	4.9
Total	27.5	33.0	34.9	41.1	25.2	32.3	38.2	34.1

[1] For average price of garment sold.

[2] These are two classes of the same grade of clothing. They are distinguished not so much by selling price as by the relative emphasis on cloth and material cost (class A), as contrasted with workmanship and the consequent labor cost (class B).

[3] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

As between material and labor, including with labor overhead factory expense, the former absorbs approximately two-thirds of the factory cost of clothing, the latter one-third. On cheap clothing material is most significant, accounting for nearly three-fourths of the bare factory cost of making garments.

The following table shows, in addition to the above facts, the importance of cloth:

TABLE 9.—*Cost of manufacturing clothing, 1910, factory costs (cloth, trimmings, direct labor and factory expense)—Data for establishments showing separately cost of cloth and cost of trimmings.*

[Items of cost expressed as per cents of total factory costs.]

Items.	Cheap ($8 and under).[1]	Medium ($8 to $15).[1]	High grade ($15 and over).[1]		Children.	Special order.	Total.
			Class A.[2]	Class B.[2]			
Total cost manufactured clothing	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Material cost:							
Cloth	56.7	45.8	42.1	34.9	43.3	45.5	44.2
Trimmings	16.6	21.3	22.7	20.7	21.2	13.4	20.8
Freight [3]	....	....	.3	.4	.1	.1	.2
Total	73.3	67.1	65.1	56.0	64.6	59.0	65.2
Manufacturing cost:							
Direct labor [4]	25.3	28.8	28.9	37.4	31.8	35.3	29.8
Factory expense	1.4	4.1	6.0	6.6	3.6	5.7	5.0
Total	26.7	32.9	34.9	44.0	35.4	41.0	34.8

[1] For average price of garment sold.

[2] These are two classes of the same grade of clothing. They are distinguished not so much by selling price as by the relative emphasis on cloth and material cost (class A), as contrasted with workmanship and the consequent labor cost (class B).

[3] The data is not shown completely under this head, some firms charging freight to general expense, others adding it to the cost of the material.

[4] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

As the above table indicates, cloth is responsible for 44 per cent of the factory cost of clothing; other materials are less than one-half as important as cloth. On cheap clothing the cost of cloth is approximately 57 per cent of the total factory cost.

Attention is called to one other large item of cost to the clothing manufacturer—that of marketing his products. Examination of Tables 6 and 7 shows that for the different grades of clothing the cost of selling is from 4 per cent to 7 per cent. This is for regular wholesale clothing. On special-order clothing and where individual garments are handled, the selling cost is naturally very much higher. The same is also true of such clothing specialties as are not sold in large lots. It will be observed, further, that the selling cost tends to increase with the grade of clothing sold.

The high cost of selling clothing is due to the fact that so much of it is sold through agents receiving commissions or salaries. It is only where most of the selling is done by members of the establishment that the cost of selling is reduced to a small fraction of the price of the garments handled.

In concluding this analysis of manufacturers' costs, it is well to point out again that there is no basis of measuring the significance of the figures for profits as shown here. The figures can not be related to investment. Satisfactory data on this point could not have been obtained without great difficulties, if at all. With the active management of the enterprises in the hands of partners or officers of corporations, very little if at all different from firms, it is impossible to distinguish between compensation for services and profits available for return on capital.

ANALYSIS OF MANUFACTURERS' COSTS AS REPORTED FOR SPECIMEN GARMENTS—MEN'S CLOTHING.

The information summarized above on the basis of information for a year's business is satisfactory as regards the accuracy of the data. It is, however, difficult to reduce in terms of definite priced garments. From the data supplied for individual garments a tabulation has been made showing what proportion of the amount paid by the retailer for any suit is expended on cloth, on trimmings, and on direct labor (wages or contract price).

Attention is here called to the varying character of the entry in the table for direct labor. For some houses it represents bare wages, exclusive of the cost of supervision, rent, and other expenses. For others it stands for contract price. In no event does it represent the entire conversion cost. The figure in the column for direct labor must be used, bearing in mind its limitations. With this reservation, it is a valuable indication of the most important item after cloth entering into the manufacture of clothing.

The detailed table printed below shows such costs for all grades of garments, these being arranged according to their net wholesale selling price. The information is intended as a supplement to the data based on the year's business showing as it does the same facts in a more concrete way.

For convenience in studying the detailed tabulation, a brief summary of it is placed first. In this table the average wholesale price is shown for cheap clothing, medium and higher grades of clothing, and an estimated retail price, assuming the latter to be about 50 per cent in excess of the wholesale price. The elements of cost are shown in absolute amount, and again as percentages of the selling price. In using the table it is to be remembered that the figures do not show the total costs. Overhead manufacturing costs, selling, and general expense are here omitted, as the prime purpose of the table is to show the importance of cloth, trimmings, and factory wages (or contract price).

TABLE 10.—*Analysis of costs of typical suits, overcoats, and pants—Average price for various grades.*

Type of garment and range of net wholesale selling price.	Estimated retail price.[1]	Wholesale net price.	Cloth cost.	Trimmings cost.	Total material cost.	Direct labor.[2]	Per cent of wholesale net price.			
							Cloth cost.	Trimmings cost.	Total material cost.	Direct labor.
Suits:										
Under $8	$10.00	$6.48	$2.65	$1.18	$3.83	$1.55	40.9	18.2	59.1	23.9
$8 to $11.99	15.00	10.16	3.80	1.92	5.72	2.67	37.4	18.9	56.3	26.3
$12 to $14.99	20.00	13.48	4.80	2.42	7.22	3.51	35.6	18.0	53.6	26.0
$15 to $19.99	25.00	16.93	5.67	2.77	8.44	4.64	37.4	16.4	49.9	27.4
Overcoats:										
Under $8	10.00	7.17	2.29	1.73	4.02	1.63	31.9	24.1	56.1	22.7
$8 to $11.99	15.00	9.85	2.84	2.44	5.28	2.23	28.8	24.8	53.6	22.6
$12 to $14.99	20.00	13.46	3.94	3.37	7.31	3.47	29.3	25.0	54.3	25.8
$15 to $19.99	25.00	17.12	5.28	3.98	9.26	3.77	30.8	23.2	54.1	22.0
Pants:										
$2 to $2.49	3.50	2.25	1.10	.19	1.29	.46	48.9	8.4	57.3	20.4
$2.50 to $2.99	4.00	2.72	1.50	.20	1.70	.54	54.8	7.3	62.1	19.5
$3 to $4	5.00	3.40	2.00	.25	2.25	.58	58.8	7.3	66.2	17.1

[1] Estimate based on the assumption that retail prices are 50 per cent above wholesale prices.

[2] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for direct labor in the cutting room plus the amount paid to contractors for making up the garments.

In cheap clothing averaging in price $6.50 at wholesale and $10 at retail, the cloth cost is 41 per cent, the trimming cost 18 per cent, the total material cost 59 per cent. In the next grade, averaging about $10 wholesale and $15 retail, cloth cost is 37 per cent, trimming cost 19 per cent. In garments selling for $13.50 wholesale and $20 retail, cloth cost is 35 per cent, trimmings cost 18 per cent. In high-grade clothing, selling at $17 wholesale and $25 retail, cloth cost is one-third, and trimmings one-sixth. As compared with cheap clothing, the material cost is 10 per cent less.

These results are on average figures. It is of interest to note that in clothing sold from $9 and upward there are two classes, one emphasizing cloth and material, the other the less tangible qualities of garments. Thus on garments selling at between $9 and $12 and averaging about $10.50, one class shows a cloth cost of 41 per cent as against 29 for the other. The respective material costs are 59 and 50 per cent. On the grade above—garments selling on the average for $13.50—the cloth cost is 40 per cent in one group, and 34 per cent in the other. The material costs are, respectively, 57 and 49 per cent. The interesting feature here is the large variation in cloth cost for suits selling at the same price. This phase will be taken up from another point of view in greater detail.

For overcoats and pants a similar table has been constructed. The interesting point to be observed is that for overcoats the cloth cost is less important than for suits, being equal to 30 per cent for all grades. On the other hand, the material cost for various grades is not very different than for suits, trimmings being very much more important on overcoats. On the cheaper grades of overcoats woolen linings are used, so that the woolen cost is higher than appears at first sight. On higher-priced overcoats silk linings are used.

On pants the cloth cost is 50 per cent of the selling price on cheap pants and more on higher grades. Trimmings are of slight importance, and contain no woolen materials.

Another view of the material summarized above may be had from the fuller and more detailed analysis of the data as presented in the following table. Here all the information for specimen garments selling within the limits of $1 has been combined and averaged. This method of treatment affords a view of the costs for all grades of garments, arranged in order of their net wholesale selling price from under $5 to $25. Table 11 gives the averages for selling price and for the various elements of cost. A column is here added showing the retail selling prices corresponding to the ascertained wholesale prices. This is based on an assumption that retail selling prices are 50 per cent in excess of the retailers' cost, or the wholesale price.

Table 12 gives, for purposes of comparison, the details of cost expressed as percentages of the net wholesale selling price.

TABLE 11a.—*Analysis of cost of typical suits for different grades of clothing—Average selling price and costs—Summary in dollar classes.*

[Arranged in order of net selling price from under $5 to $25 per garment.]

Range of net wholesale selling price.	Net wholesale selling price.	Estimated retail price.[1]	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[2]	Total cost of material and direct labor.
Under $5	$4.13	$6.00	$1.58	$0.63	$2.21	$1.00	$3.21
$5 to $5.99	5.65	8.00	2.39	1.07	3.46	1.46	4.92
$6 to $6.99	6.64	10.00	2.65	1.26	3.91	1.55	5.46
$7 to $7.99	7.59	12.00	3.16	1.34	4.50	1.79	6.29
$8 to $8.99	8.46	13.00	3.37	1.57	4.94	1.94	6.88
$9 to $9.99	9.37	14.00	3.71	1.80	5.51	2.41	7.92
$10 to $10.99	10.30	16.00	3.77	1.95	5.72	2.72	8.44
$11 to $11.99	11.54	17.00	4.05	2.15	6.20	3.17	9.37
$12 to $12.99	12.44	19.00	4.35	2.34	6.69	3.31	10.00
$13 to $13.99	13.64	21.00	4.97	2.40	7.37	3.60	10.97
$14 to $14.99	14.47	22.00	5.11	2.52	7.63	3.65	11.28
$15 to $15.99	15.31	23.00	5.13	2.58	7.71	4.30	12.01
$16 to $16.99	16.43	25.00	5.73	2.88	8.61	4.81	13.42
$17 to $17.99	17.32	26.00	5.70	2.73	8.43	4.91	13.34
$18 to $18.99	18.48	28.00	6.13	2.88	9.01	4.55	13.56
$19 to $19.99	19.52	29.00	6.34	3.10	9.44	5.06	14.50
$20 to $20.99	20.24	30.00	7.90	3.15	11.05	4.68	15.73
$21 to $21.99	21.50	33.00	7.31	2.94	10.25	4.99	15.24
$22 to $22.99	22.59	34.00	8.42	3.33	11.75	5.74	17.49
$23 to $23.99	23.38	35.00	9.02	8.11	12.13	4.87	17.00
$24 to $24.99	24.15	37.00	8.11	3.26	11.37	6.08	17.45
SUMMARY OF TOTALS.							
Under $8	6.48	10.00	2.65	1.18	3.83	1.55	5.38
$8 to $11.99	10.16	15.00	3.80	1.92	5.72	2.67	8.39
$12 to $14.99	13.48	20.00	4.80	2.42	7.22	3.51	10.73
$15 to $19.99	16.93	25.00	5.67	2.77	8.44	4.64	13.08
$20 and over	21.96	33.00	8.14	3.14	11.28	5.11	16.39

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[1] Estimate based on the assumption that retail prices are 50 per cent above wholesale price.

[2] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

TABLE 11b.—*Analysis of costs of typical overcoats for different grades of clothing—Average selling price and costs—Summary in dollar classes.*

[Arranged in order of net selling price from $6 to over $25 per garment.]

Range of net wholesale selling price.	Net wholesale selling price.	Estimated retail price.[1]	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[2]	Total cost of material and direct labor.
$6 to $6.99	$6.73	$10.50	$2.05	$1.55	$3.60	$1.28	$4.88
$7 to $7.99	7.62	12.00	2.54	1.90	4.44	1.99	6.43
$8 to $8.99	8.64	13.00	2.56	1.98	4.54	1.45	5.99
$9 to $9.99	9.39	14.25	2.75	2.61	5.36	2.15	7.51
$10 to $10.99	10.26	16.00	3.10	2.29	5.39	2.12	7.51
$11 to $11.99	11.35	17.00	2.90	2.80	5.70	3.35	9.05
$12 to $12.99	12.42	19.00	3.39	3.29	6.68	3.51	10.19
$13 to $13.99	13.85	21.00	4.01	2.90	6.91	3.55	10.46
$14 to $14.99	14.69	22.50	4.71	3.84	8.55	3.34	11.89
$15 to $15.99	15.01	23.00	3.85	3.82	7.67	3.38	11.05
$16 to $16.99	16.42	25.25	5.22	3.80	9.02	3.93	12.95
$18 to $18.99	18.30	28.00	5.64	4.21	9.85	4.05	13.91
$19 to $19.99	19.46	30.00	6.88	4.15	11.03	2.86	13.89
$22 to $22.99	22.75	35.00	7.92	4.82	12.74	4.56	17.30
$23 to $23.99	23.25	35.00	7.64	6.35	13.99	3.08	17.07
$25 and over	34.41	51.50	11.52	9.50	21.02	3.72	24.74
SUMMARY OF TOTALS.							
Under $8	7.17	10.00	2.29	1.73	4.02	1.63	5.65
$8 to $11.99	9.85	15.00	2.84	2.44	5.28	2.23	7.51
$12 to $14.99	13.46	20.00	3.94	3.37	7.31	3.47	10.78
$15 to $19.99	17.12	25.00	5.28	3.98	9.26	3.77	13.03
$20 and over	26.80	40.00	9.02	6.89	15.91	3.79	19.70

[1] Estimate based on the assumption that retail prices are 50 per cent above wholesale price.

[2] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

TABLE 11c.—*Analysis of costs of typical pants for different grades of clothing—Average selling price and costs—Summary in dollar classes.*

[Arranged in order of net selling price from under $2 to over $4 per garment.]

Range of net wholesale selling price.	Net wholesale selling price.	Estimated retail price.[1]	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[2]	Total cost of material and direct labor.
Under $2	$1.58	$2.50	$0.78	$0.14	$0.92	$0.41	$1.33
$2 to $2.49	2.15	3.50	1.10	.19	1.29	.45	1.74
$2.50 to $2.99	2.72	4.00	1.49	.20	1.69	.53	2.22
$3 to $3.99	3.40	5.50	2.00	.25	2.25	.58	2.83
Over $4	4.55	7.00	2.68	.23	2.91	.65	3.56

[1] Estimate based on the assumption that retail prices are 50 per cent above wholesale price.

[2] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

Attention is called to the parallel series formed by the ascending averages, both for net selling prices and for cloth costs, showing the importance of cloth in the price of the garment.

The facts may be studied more readily in the following table of percentages:

TABLE 12A.—*Analysis of costs of typical suits for different grades of clothing—Summary in dollar classes.*

[Details of cost expressed as percentages of net selling price.]

Range of net wholesale selling price.	Net wholesale selling price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Total cost of material and direct labor.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Under $5	100.00	38.25	15.25	53.51	24.21	77.72
$5 to $5.99	100.00	42.30	18.93	61.23	25.84	87.07
$6 to $6.99	100.00	39.91	18.97	58.88	23.34	82.22
$7 to $7.99	100.00	41.63	17.65	59.28	23.58	82.87
$8 to $8.99	100.00	39.83	18.57	58.39	22.93	81.32
$9 to $9.99	100.00	39.59	19.21	58.80	25.72	84.52
$10 to $10.99	100.00	36.60	18.93	55.53	26.41	81.94
$11 to $11.99	100.00	35.09	18.63	53.72	27.46	81.19
$12 to $12.99	100.00	34.43	18.81	53.76	26.61	80.38
$13 to $13.99	100.00	36.44	17.59	54.03	26.39	80.42
$14 to $14.99	100.00	35.29	17.41	52.70	25.20	77.90
$15 to $15.99	100.00	33.53	16.86	50.39	28.10	78.49
$16 to $16.99	100.00	34.87	17.53	54.20	29.27	81.67
$17 to $17.99	100.00	32.91	15.76	48.67	28.35	77.02
$18 to $18.99	100.00	33.17	15.59	48.76	24.62	73.38
$19 to $19.99	100.00	32.48	15.88	48.36	25.92	74.28
$20 to $20.99	100.00	39.03	15.56	54.59	23.12	77.71
$21 to $21.99	100.00	34.00	13.67	47.67	23.21	70.88
$22 to $22.99	100.00	37.25	14.73	51.99	25.39	77.38
$23 to $23.99	100.00	38.58	13.30	51.88	20.82	72.71
$24 to $24.99	100.00	33.58	13.49	47.07	25.17	72.25
SUMMARY OF TOTALS.						
Under $8	100.00	40.89	18.21	59.10	23.92	83.02
$8 to $11.99	100.00	37.40	18.89	56.29	26.27	82.57
$12 to $14.99	100.00	35.60	17.95	53.55	26.04	79.60
$15 to $19.99	100.00	37.40	16.36	49.85	27.41	77.26
$20 and over	100.00	37.07	14.29	51.36	23.27	74.63

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[1] This entry represents derect labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

TABLE 12B.—*Analysis of costs of typical overcoats for different grades of clothing—Summary in dollar classes.*

[Details of cost expressed as percentages of net selling price.]

Range of net wholesale selling price.	Net wholesale selling price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Total cost of material and direct labor.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
$6 to $6.99	100.00	30.46	23.03	53.49	19.02	72.51
$7 to $7.99	100.00	33.33	24.93	58.26	26.12	84.38
$8 to $8.99	100.00	29.63	22.92	52.55	16.78	69.33
$9 to $9.99	100.00	29.29	27.79	57.08	22.89	79.97
$10 to $10.99	100.00	30.21	22.31	52.53	20.66	73.19
$11 to $11.99	100.00	25.54	24.67	50.21	29.51	79.73
$12 to $12.99	100.00	27.29	26.49	53.78	28.25	82.03
$13 to $13.99	100.00	28.95	20.93	49.89	25.63	75.52
$14 to $14.99	100.00	32.07	26.14	58.22	22.72	80.94
$15 to $15.99	100.00	25.64	25.44	51.09	22.51	73.61
$16 to $16.99	100.00	31.78	23.14	54.93	23.93	78.86
$18 to $18.99	100.00	30.32	22.63	52.96	21.77	74.73
$19 to $19.99	100.00	35.35	21.32	56.67	14.69	71.37
$22 to $22.99	100.00	34.81	21.18	56.00	20.04	76.04
$23 to $23.99	100.00	32.86	27.31	60.17	13.24	73.41
$25 and over	100.00	33.47	27.60	61.08	10.81	71.89
SUMMARY OF TOTALS.						
Under $8	100.00	31.94	24.12	56.06	22.73	78.80
$8 to $11.99	100.00	28.83	24.77	53.60	22.63	76.24
$12 to $14.99	100.00	29.27	25.03	54.31	25.78	80.09
$15 to $19.99	100.00	30.84	23.24	54.08	22.02	76.10
$20 and over	100.00	33.65	25.70	59.36	14.14	73.50

[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

TABLE 12C.—*Analysis of cost of typical pants for different grades of clothing—Summary in dollar classes.*

[Details of cost expressed as percentages of net selling price.]

Range of net wholesale selling price.	Net wholesale selling price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Total cost of material and direct labor.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Under $2	100.00	49.38	8.86	58.23	25.94	84.17
$2 to $2.49	100.00	51.16	8.84	60.00	20 93	80.93
$2.50 to $3	100.00	54.78	7.35	62.13	19.48	81.61
$3 to $3.99	100.00	58.82	7.35	66.17	17.06	83.23
Over $4	100.00	58.90	5.05	63.95	14.28	78.24

[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

It will be observed that as the selling prices increase there is a gradual decline in the percentage expended for cloth, emphasizing the general observation made before that cloth is more important an element of cost in popular grades of clothing than in the higher grades, although in all grades having a wide sale cloth is the largest element of cost.

The cost of cloth and material absorb a diminishing percentage of the selling price of garments as higher grades of clothing are reached. Nevertheless the cost of cloth is still a very large factor, if not the determining one in the price of higher-grade clothing. This may be seen by taking the difference in price and in costs for various grades of clothing, and noting the percentage of the increase in price which is absorbed in cloth and in trimming and in direct labor.

TABLE 13.—*Difference in selling price and in items of cost for different grades of suits.*

(*a*) AMOUNT.

Average prices for grades of clothing compared.	Estimated retail selling price.[1]	Net wholesale selling price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor.[2]
$6.48 to $10.16	$5.00	$3.68	$1.15	$0.74	$1.89	$1.13
$10.16 to $13.48	5.00	3.32	1.00	.50	1.50	.84
$13.48 to $16.93	5.00	3.45	87	35	1.22	1.13

(*b*) PER CENT.

Average prices for grades of clothing compared.	Estimated retail selling price.[1]	Net wholesale selling price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor.[2]
$6.48 to $10.16	....	100.00	31.25	20.11	51.36	30.43
$10.16 to $13.48	....	100.00	30.12	15.06	45.18	25.30
$13.48 to $16.93	....	100.00	25.21	10.14	35.36	32.75

[1] Estimate based on the assumption that retail prices are 50 per cent above wholesale price.

[2] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

The detailed information underlying the above summaries and discussion is made available in the following table embodying the information for cloth cost, trimming cost, and direct labor (or contract price). This table is for specimen garments, for which costs were obtained from wholesale clothiers. The data contained herein are particularly significant as showing the variation of costs for cloth, trimming, and labor in garments selling at the same price.

TABLE 14*a*.—*Analysis of costs of typical suits—Selling price and details of costs.*

[Arranged in order of net selling price.]

Range of net wholesale selling price.	Reference number.	Wholesale selling price.[1]		Cloth cost per yard net.	Yards per suit.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[2]	Total cost of material and direct labor.
		Gross.	Net.							
Under $5	1	$3.75	$3.75	$0.45	3.25	$1.46	$0.58	$2.04	$0.95	$2.99
	2	4.50	4.50	.52	3.25	1.69	.69	2.38	1.05	3.43
$5 to $5.99	3	5.50	5.50	.65	3.25	2.11	1.00	3.11	1.26	4.37
	4	6.00	5.58	.67	3.375	2.27	1.13	3.40	1.56	4.96
	5	6.00	5.58	.75	3.375	2.52	1.13	3.65	1.56	5.21
	6	6.50	5.93	.7875	3.375	2.66	1.03	3.69	1.47	5.16
$6 to $6.99	7	7.00	6.36	.90	3.375	3.04	1.10	4.14	1.63	5.77
	8	7.00	6.37	.856	3.375	2.89	1.10	3.99	1.63	5.62
	9	7.00	6.51	.67	3.375	2.27	1.13	3.40	1.56	4.96
	10	7.00	6.51	.75	3.375	2.52	1.13	3.65	1.56	5.21
	11	6.75	6.75	.71	3.375	2.40	1.44	3.84	1.26	5.10
	12	6.75	6.75	.775	3.375	2.62	1.44	4.06	1.38	5.44
	13	6.95	6.90	.925	3.375	3.12	1.10	4.22	1.59	5.81
	14	7.50	6.97	.67	3.54	2.37	1.64	4.01	1.82	5.83
$7 to $7.99	15	7.50	7.35	.85	3.50	2.98	1.35	4.33	1.85	6.18
	16	8.00	7.44	.90	3.375	3.04	1.30	4.34	1.68	6.02
	17	7.50	7.50	1.025	3.375	3.46	1.13	4.59	1.69	6.28
	18	8.50	7.65	.875	3.31	2.90	1.41	4.31	1.33	5.64
	19	8.50	7.72	1.08	3.375	3.65	1.25	4.90	1.93	6.83
	20	8.50	7.90	.84	3.50	2.94	1.60	4.54	2.24	6.78
$8 to $8.99	21	9.00	8.37	.814	3.50	2.85	1.75	4.60	2.26	6.86
	22	9.00	8.37	1.025	3.375	3.46	1.50	4.96	1.86	6.82
	23	8.50	8.50	.85	3.50	2.98	1.72	4.70	2.19	6.89
	24	8.50	8.50	1.175	3.375	3.97	1.25	5.22	1.82	7.04
	25	8.55	8.55	1.06	3.375	3.58	1.62	5.20	1.56	6.76

[1] The corresponding retail price may be estimated by adding 50 per cent to the wholesale price.

[2] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

TABLE 14a.—*Analysis of costs of typical suits—Selling price and details of costs.*—Continued.

Range of net wholesale selling price.	Reference number.	Wholesale selling price.		Cloth cost per yard net.	Yards per suit.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.	Total cost of material and direct labor.
		Gross.	Net.							
$9 to $9.99	26	$9.00	$9.00	$1.28	3.375	$4.32	$1.44	$5.76	$1.43	$7.19
	27	10.00	9.08	1.26	3.375	4.25	1.65	5.90	2.25	8.15
	28	10.00	9.18	.91	3.375	3.07	1.70	4.77	2.59	7.36
	29	10.00	9.18	1.057	3.375	3.57	1.70	5.27	2.59	7.86
	30	10.00	9.18	1.057	3.375	3.57	1.70	5.27	2.59	7.86
	31	10.00	9.18	1.08	3.375	3.65	1.70	5.35	2.59	7.94
	32	10.00	9.18	1.17	3.375	3.95	1.70	5.65	2.59	8.24
	33	10.00	9.25	1.10	3.50	3.86	1.75	5.61	2.75	8.36
	34	10.00	9.30	.81	3.50	2.83	2.30	5.13	2.40	7.53
	35	10.00	9.30	.90	3.625	3.26	1.82	5.08	2.37	7.45
	36	10.00	9.30	.95	3.50	3.33	1.60	4.93	2.25	7.18
	37	10.00	9.30	.995	3.50	3.48	1.80	5.28	2.49	7.77
	38	10.00	9.30	1.00	3.50	3.50	2.08	5.58	2.22	7.80
	39	10.00	9.30	1.115	3.50	3.90	1.58	5.48	2.50	7.98
	40	10.00	9.30	1.12	3.375	3.78	1.53	5.31	2.39	7.70
	41	10.00	9.30	1.35	3.375	4.56	1.53	6.09	2.39	8.48
	42	10.00	9.46	1.08	3.50	3.78	2.02	5.80	2.66	8.46
	43	10.50	9.53	1.30	3.375	4.39	1.65	6.04	2.26	8.30
	44	10.50	9.74	1.0125	3.66	3.71	2.12	5.83	2.43	8.26
	45	10.50	9.77	1.05	3.18	3.34	1.90	5.24	2.45	7.69
	46	10.00	9.80	1.25	3.50	4.38	1.75	6.13	2.30	8.43
	47	10.50	9.95	.90	3.625	3.26	2.39	5.65	2.67	8.32
$10 to $10.99	48	10.00	10.00	1.00	3.50	3.50	1.98	5.48	2.88	8.36
	49	10.00	10.00	1.50	3.375	5.06	1.35	6.41	2.08	8.49
	50	10.50	10.08	.90	3.50	3.15	2.00	5.15	2.68	7.83
	51	11.00	10.09	1.215	3.375	4.10	1.85	5.95	2.59	8.54
	52	11.00	10.09	1.25	3.375	4.22	1.85	6.07	2.59	8.66
	53	11.00	10.09	1.26	3.375	4.25	1.85	6.10	2.59	8.69
	54	11.00	10.23	.925	3.625	3.35	2.57	5.92	3.37	9.29
	55	11.00	10.67	.85	3.625	3.08	2.03	5.11	3.03	8.14
	56	11.50	10.69	.875	3.50	3.06	2.00	5.06	2.55	7.61
	57	11.50	10.70	1.06	3.625	3.84	1.84	5.68	3.12	8.80
	58	11.50	10.70	1.10	3.50	3.85	2.13	5.98	2.42	8.40
$11 to $11.99	59	12.00	11.16	1.12	3.50	3.92	2.20	6.12	3.04	9.16
	60	12.00	11.16	1.25	3.50	4.38	1.80	6.18	2.60	8.78
	61	12.50	11.38	.80	3.50	2.80	2.37	5.17	4.34	9.51
	62	12.00	11.40	.90	3.625	3.26	2.25	5.51	3.28	8.79
	63	12.50	11.47	1.33	3.375	4.49	2.00	6.49	3.04	9.53
	64	12.50	11.47	1.43	3.375	4.83	2.00	6.83	3.04	9.87
	65	12.50	11.47	1.48	3.375	5.00	2.00	7.00	3.04	10.04
	66	12.50	11.47	1.60	3.375	5.40	2.00	7.40	3.04	10.44
	67	11.50	11.50	1.25	3.50	4.38	2.06	6.44	3.31	9.75
	68	12.50	11.60	1.26	3.66	4.62	2.28	6.90	3.03	9.93
	69	12.50	11.62	.95	3.50	3.33	2.36	5.69	2.95	8.64
	70	12.50	11.63	1.35	3.50	4.73	2.08	6.81	2.65	9.46
	71	12.50	11.63	1.42	3.50	4.97	1.64	6.61	2.50	9.11
	72	12.50	11.66	.78	3.65	2.85	2.26	5.11	3.24	8.35
	73	12.50	11.66	.80	3.65	2.92	2.26	5.18	3.24	8.42
	74	12.50	11.82	.91	3.50	3.19	2.26	5.45	2.87	8.32
	75	13.00	11.83	1.00	3.625	3.63	2.25	5.88	4.86	10.74
	76	12.50	11.85	1.20	3.625	4.35	2.59	6.94	2.92	9.86
$12 to $12.99	77	13.00	12.08	.89	3.50	3.12	2.57	5.69	3.60	9.29
	78	13.00	12.09	1.33	3.50	4.66	2.69	7.35	3.25	10.60
	79	12.50	12.13	1.12	3.625	4.06	2.03	6.09	3.18	9.27
	80	12.50	12.25	1.75	3.50	6.13	2.25	8.38	2.80	11.18
	81	13.50	12.39	1.63	3.375	5.49	2.15	7.64	3.23	10.87
	82	13.50	12.39	1.78	3.375	6.01	2.15	8.16	3.23	11.39
	83	13.50	12.49	1.28	3.50	4.48	2.05	6.53	3.13	9.66
	84	13.50	12.53	1.40	3.66	5.12	2.36	7.48	3.24	10.72
	85	13.50	12.54	.96	3.60	3.46	2.36	5.82	3.54	9.36
	86	13.50	12.55	.925	3.42	3.16	2.57	5.73	3.73	9.46
	87	13.50	12.55	1.13	3.42	3.86	2.57	6.43	3.72	10.15
	88	13.50	12.56	1.125	3.18	3.58	2.42	6.00	3.40	9.40
	89	13.50	12.56	1.23	3.625	4.46	2.12	6.58	3.01	9.59
	90	13.50	12.60	1.00	3.65	3.65	2.32	5.97	3.24	9.21
	91	13.50	12.83	1.10	3.625	3.99	2.55	6.54	3.40	9.94
$13 to $13.99	92	14.00	13.02	1.50	3.50	5.25	2.00	7.25	2.90	10.15
	93	14.00	13.06	1.08	3.60	3.89	2.32	6.21	3.24	9.45
	94	14.50	13.48	1.195	3.42	4.08	2.57	6.65	3.72	10.37
	95	13.48	13.48	1.195	3.42	4.08	2.57	6.65	4.12	10.77
	96	13.48	13.48	1.35	3.42	4.62	2.57	7.19	4.12	11.31
	97	14.50	13.48	1.45	3.50	5.08	2.13	7.21	3.25	10.46
	98	13.49	13.49	1.29	3.42	4.41	2.57	6.98	4.12	11.10

TABLE 14*a*.—*Analysis of costs of typical suits—Selling price and details of costs*—Continued.

Range of net wholesale selling price.	Reference number.	Wholesale selling price.		Cloth cost per yard net.	Yards per suit.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.	Total cost of material and direct labor.
		Gross.	Net.							
$13 to $13.99	99	$15.00	$13.65	$1.125	3.625	$4.08	$2.26	$6.33	$4.86	$11.19
	100	15.00	13.76	1.62	3.375	5.47	2.40	7.87	3.31	11.18
	101	15.00	13.76	1.80	3.375	6.08	2.40	8.48	3.31	11.79
	102	15.00	13.92	1.67	3.66	6.12	2.51	8.63	3.59	12.22
	103	15.00	13.95	1.35	3.625	4.90	2.37	7.27	4.06	11.33
	104	15.00	13.95	1.42	3.625	5.15	3.17	8.32	3.25	11.57
	105	15.00	13.95	1.43	3.42	4.89	2.57	7.46	3.73	11.19
	106	15.00	13.95	1.51	3.50	5.28	2.40	7.68	3.49	11.17
	107	15.00	13.95	1.75	3.50	6.13	1.68	7.81	2.50	10.31
$14 to $14.99	108	14.00	14.00	1.45	3.50	5.08	2.29	7.37	3.77	11.14
	109	15.00	14.02	1.33	3.42	4.55	2.57	7.12	3.72	10.84
	110	14.50	14.07	1.40	3.625	5.08	2.31	7.39	3.38	10.77
	111	15.00	14.25	1.20	3.625	4.35	2.75	7.10	4.00	11.10
	112	15.50	14.35	1.58	3.42	5.38	2.57	7.95	3.72	11.67
	113	15.50	14.41	1.29	3.42	4.41	2.57	6.98	4.12	11.10
	114	15.50	14.41	1.53	3.625	5.55	3.01	8.56	3.15	11.71
	115	15.50	14.42	1.49	3.50	5.22	2.22	7.44	3.05	10.49
	116	15.00	14.70	2.00	3.50	7.00	2.70	9.70	3.05	12.75
	117	16.00	14.86	1.06	3.66	3.89	2.54	6.43	4.09	10.52
	118	16.00	14.86	1.25	3.625	4.53	2.42	6.95	4.38	11.33
	119	16.00	14.88	1.51	3.42	5.16	2.57	7.73	3.72	11.45
	120	16.00	14.88	1.80	3.50	6.30	2.25	8.55	3.30	11.85
$15 to $15.99	121	16.50	15.01	1.28	3.50	4.48	2.59	7.07	4.49	11.56
	122	16.50	15.01	1.75	3.50	6.13	2.50	8.63	5.03	13.66
	123	16.50	15.14	1.43	3.42	4.89	2.57	7.46	3.72	11.18
	124	15.25	15.25	1.51	3.42	5.16	2.57	7.73	4.12	11.85
	125	16.50	15.31	1.40	3.625	5.08	2.10	7.18	4.12	11.30
	126	16.50	15.31	1.85	3.66	6.77	2.55	9.32	3.84	13.16
	127	16.50	15.34	1.38	3.625	4.98	2.70	7.68	5.47	13.15
	128	16.50	15.38	1.40	3.42	4.79	2.57	7.36	4.94	12.30
	129	16.50	15.39	1.32	3.60	4.78	2.77	7.55	3.74	11.29
	130	16.50	15.61	1.32	3.50	4.62	2.52	7.14	3.57	10.71
	131	16.50	15.67	1.35	3.625	4.90	2.85	7.75	4.30	12.05
$16 to $16.99	132	16.00	16.00	1.75	3.50	6.13	2.35	8.48	4.36	12.84
	133	17.50	16.26	1.27	3.625	4.60	2.45	7.05	5.04	12.09
	134	17.50	16.26	1.29	3.50	4.50	2.90	7.40	4.53	11.93
	135	17.50	16.26	1.33	3.50	4.65	2.53	7.18	5.28	12.46
	136	18.00	16.74	1.85	3.625	6.71	3.41	10.12	3.50	13.62
	137	18.00	16.74	1.85	3.625	6.71	3.41	10.12	7.20	17.32
	138	18.00	16.74	1.88	3.625	6.80	3.09	9.89	3.80	13.69
$17 to $17.99	139	18.50	17.17	1.60	3.625	5.78	2.60	8.38	4.12	12.50
	140	18.50	17.19	1.38	3.50	4.81	2.60	7.41	5.32	12.73
	141	18.50	17.20	1.49	3.75	5.59	3.00	8.59	5.02	13.61
	142	18.50	17.20	1.58	3.625	5.71	2.46	8.17	5.72	13.89
	143	18.00	17.38	1.50	3.625	5.44	2.65	8.09	5.41	13.50
	144	18.50	17.51	1.85	3.50	6.48	2.84	9.32	4.19	13.51
	145	18.50	17.57	1.68	3.625	6.07	3.00	9.07	4.60	13.67
$18 to $18.99	146	19.50	18.19	1.78	3.47	6.17	3.01	9.18	4.16	13.34
	147	20.00	18.20	1.75	3.625	6.35	2.70	9.05	5.46	14.51
	148	20.00	18.56	1.75	3.625	6.34	2.90	9.24	4.28	13.52
	149	20.00	18.58	1.48	3.625	5.36	2.64	8.00	5.41	13.41
	150	20.00	18.60	1.78	3.42	6.09	2.95	9.04	3.72	12.76
	151	20.00	18.60	1.96	3.42	6.70	2.95	9.65	4.12	13.77
	152	20.00	18.66	1.71	3.47	5.94	3.01	8.95	4.67	13.62
$19 to $19.99	153	20.50	19.47	1.78	3.50	6.22	3.39	9.61	5.20	14.81
	154	21.00	19.51	1.67	3.66	6.12	2.77	8.89	5.82	14.71
	155	21.00	19.59	1.91	3.50	6.69	3.14	9.83	4.17	14.00
$20 to $20.99	156	22.00	20.02	2.00	3.50	7.00	2.85	9.85	4.99	14.84
	157	22.00	20.02	2.13	3.625	7.70	3.05	10.75	5.51	16.26
	158	22.00	20.46	2.25	3.42	7.70	3.50	11.20	4.12	15.32
	159	22.00	20.46	2.55	3.625	9.25	3.18	12.43	4.10	16.53
$21 to $21.99	160	22.50	21.30	2.24	3.50	7.84	3.23	11.07	4.39	15.46
	161	23.00	21.36	1.96	3.50	6.86	2.78	9.64	4.71	14.35
	162	23.50	21.85	1.97	3.66	7.22	2.81	10.03	5.88	15.91
$22 to $22.99	163	24.00	22.27	2.25	3.625	8.16	3.75	11.91	4.28	16.19
	164	25.00	22.75	2.75	3.625	9.97	3.15	13.12	5.56	18.68
	165	24.50	22.76	2.11	3.375	7.12	3.11	10.23	7.37	17.60
$23 to $23.99	166	25.00	23.22	2.28	3.60	8.15	2.93	11.08	5.57	16.65
	167	25.00	23.25	2.35	3.625	8.52	6.18	14.70	4.10	18.80
	168	25.00	23.66	2.76	3.50	9.66	3.23	12.89	4.92	17.81
Over $24	169	26.00	24.15	2.36	3.437	8.11	3.26	11.37	6.08	17.45

TABLE 14*b*.—*Analysis of costs of typical overcoats—Selling price and details of costs.*

[Arranged in order of net selling price.]

Range of net wholesale selling price.	Reference number.	Wholesale selling.[1]		Cloth cost per yard, net.	Yards per overcoat.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[2]	Total cost of material and direct labor.
		Gross.	Net.							
$6 to $6.99	1	$6.75	$6.48	$0.85	2.625	$2.24	$1.44	$3.68	$1.32	$5.00
	2	7.50	6.97	.82	2.26	1.85	1.67	3.52	1.25	4.77
$7 to $7.99	3	7.50	7.50	.90	3.00	2.70	1.85	4.55	1.43	5.98
	4	10.00	9.25	.86	2.75	2.37	1.95	4.32	2.54	6.86
$8 to $8.99	5	9.00	8.64	.70	3.00	2.10	2.15	4.25	1.53	5.78
	6	9.00	8.64	1.05	2.875	3.02	1.81	4.83	1.37	6.20
$9 to $9.99	7	10.00	9.10	1.06	3.00	3.17	2.50	5.67	2.26	7.93
	8	8.50	7.73	.86	3.00	2.57	2.11	4.68	1.69	6.37
	9	10.00	9.30	1.03	2.21	2.28	2.69	4.97	2.05	7.02
	10	10.50	9.93	.95	3.125	2.97	3.15	6.12	2.59	8.71
$10 to $10.99	11	10.50	10.08	1.10	3.25	3.58	1.42	5.00	1.32	6.32
	12	11.00	10.23	1.13	2.875	3.23	2.50	5.73	2.50	8.23
	13	11.50	10.46	.81	3.06	2.48	2.95	5.43	2.55	7.98
$11 to $11.99	14	12.50	11.32	1.40	3.00	4.20	3.24	7.44	2.36	9.80
	15	12.50	11.38	.80	2.00	1.60	2.37	3.97	4.34	8.31
$12 to $12.99	16	13.50	12.28	.95	3.06	2.91	3.16	6.07	2.90	8.97
	17	13.50	12.28	1.58	3.00	4.73	3.22	7.95	2.36	10.31
	18	13.25	12.40	1.11	3.42	3.79	2.57	6.36	4.94	11.30
	19	13.50	12.55	1.035	2.50	2.59	3.60	6.19	3.72	9.91
	20	13.50	12.55	1.13	2.50	2.82	3.60	6.42	3.41	9.83
	21	13.50	12.55	1.43	2.50	3.58	3.60	7.18	3.72	10.90
$13 to $13.99	22	15.00	13.65	1.25	2.75	3.44	3.05	6.49	4.44	10.93
	23	15.00	13.95	1.50	2.50	3.75	3.60	7.35	3.72	11.07
	24	15.00	13.95	1.63	3.00	4.88	2.05	6.93	2.50	9.43
$14 to $14.99	25	15.50	14.35	1.92	2.50	4.80	3.60	8.40	3.72	12.12
	26	15.50	14.66	1.71	2.75	4.70	3.85	8.55	3.00	11.55
	27	16.00	14.88	1.60	2.875	4.60	4.33	8.93	2.93	11.86
	28	16.00	14.88	1.92	2.50	4.80	3.60	8.40	3.72	12.12
$15 to $15.99	29	16.50	15.01	1.30	2.625	3.41	4.18	7.59	3.36	10.95
	30	16.50	15.01	1.40	3.06	4.29	3.45	7.74	3.40	11.14
$16 to $16.99	31	17.50	16.27	2.03	2.50	5.08	3.60	8.68	3.72	12.40
	32	17.50	16.28	2.03	2.50	5.08	3.60	8.68	3.72	12.40
	33	18.00	16.38	2.00	2.75	5.50	3 50	9.00	4.54	13.54
	34	18.00	16.74	2.14	2.50	5.35	4.50	9.85	3.72	13.57
$18 to $18.99	35	20.00	18.20	1.75	2.75	4.81	5.30	10.11	4.54	14.65
	36	20.00	18.20	1.94	3.06	5.94	3.55	9.49	4.58	14.07
	37	20.00	18.20	2.50	2.75	6.88	3.50	10.38	4.49	14.87
	38	20.00	18.60	2.00	2.47	4.94	4.50	9.44	2.60	12.04
$19 to $19.99	39	20.00	19.46	2.50	2.75	6.88	4.15	11.03	2.86	13.89
$22 to $22.99	40	25.00	22.75	2.70	3.06	8.27	3.55	11.82	4.58	16.40
	41	25.00	22.75	2.75	2.75	7.56	6.10	13.66	4.54	18.20
$23 to $23.99	42	24.50	23.18	2.10	2.75	5.78	8.05	13.83	3.11	16.94
	43	24.00	23.32	3.30	2.875	9.49	4.65	14.14	3.05	17.19
$25 and over	44	34.00	31.62	4.05	2.50	10.13	8.90	19.03	3.72	22.75
	45	40.00	37.20	5.18	2.50	12.95	10.10	23.05	3.72	26.77

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[1] The corresponding retail price may be estimated by adding 50 per cent to the wholesale price.

[2] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

TABLE 14c.—*Analysis of costs of typical pants—Selling price and details of costs.*

[Arranged in order of net selling price.]

Range of net wholesale selling price.	Reference number.	Wholesale selling.[1]		Cloth cost per yard net.	Yards per pants.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[2]	Total cost of material and direct. labor.
		Gross.	Net.							
$2 and under	1	$1.50	$1.35	$0.58	1.26	$0.72	$0.14	$0.86	$0.30	$1.16
	2	2.00	1.80	.63	1.34	.84	.13	.97	.52	1 49
$2 to $2.49	3	2.25	2.09	.85	1.22	1.04	.20	1.24	.39	1.63
	4	2.25	2.09	.90	1.29	1.16	.20	1.36	.39	1.75
	5	2.50	2.28	.83	1.34	1.11	.16	1.27	.58	1 85
$2.50 to $2.99	6	3.00	2.70	1.25	1.29	1.61	.22	1.83	.49	2.32
	7	3.00	2.73	1.03	1.34	1.37	.18	1.55	.57	2.12
$3 to $3.99	8	3.50	3.15	1.40	1.29	1.81	.25	2.06	.58	2.64
	9	4.00	3.64	1.70	1.29	2.19	.25	2.44	.58	3 02
Over $4	10	5.00	4.55	2.00	1.34	2.68	.23	2.91	.65	3.56

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[1] The corresponding retail price may be estimated by adding 50 per cent to the wholesale price.

[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

TABLE 14d.—*Analysis of costs of typical suits (special order)—Selling price and details of costs.*

[Arranged in order of net selling price.]

Wholesale selling price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Total cost of material and direct labor.
$10.50	$2.80	$1.25	$4.05	$3.57	$7.62
$12	3.60	1.75	5.35	5.25	10.60
	4.04	1.70	5.74	3.54	9.28
$13	2.86	2.25	5.11	4.62	9.73
$14	4.36	1.75	6.11	5.30	11.41
$15	4.83	1.70	6.53	3.57	10.10
$16	5.00	1.70	6.70	3.57	10.27
	5.05	2.00	7.05	5.60	12.65
$17	3.58	2.60	6.18	4.80	10.98
$18	5.96	2.00	7.96	5.90	13.86
$20	5.38	2.75	8.13	6.14	14.27
	6.67	3.75	10.42	4.12	14.54
	6.69	2.25	8.94	6.47	15.41
$22	6.54	2.85	9.39	5.59	14.98
	7.59	2.25	9.84	7.03	16.87
$25	7.71	3.10	10.81	6.14	16.95
	8.68	2.50	11.18	7.86	19.04
	10.00	2.00	12.00	3.54	15.54
$26	8.25	4.10	12.35	4.92	17.27
$28	9.26	3.12	12.38	6.44	18.82
	10.49	2.75	13.24	8.74	21.98
$32	11.20	3.85	15.05	7.03	22.08

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[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

IMPORTANCE OF WOOLEN LININGS IN THE MANUFACTURE OF CLOTHING.

The foregoing discussion was concerned chiefly with the cost of cloth and its importance among the manufacturers' costs. In medium and high grade clothing the lining used for the inside of the coat and back of the vest is woolen, or rather a cotton warped woolen cloth. About 2⅛ yards are used and the price of such linings are from 30 to 50 cents per yard. From the data gathered it appears that the cost of such lining is equal to fully 5 or 6 per cent of the selling price of the garment. On some grades of clothing it is equal to 8 or 9 per cent of the net selling price.

The accompanying table shows for specimen suits the cost of woolen linings per yard. The total cost of the lining can readily be computed by multiplying by 2 or 2⅛.

Table 15.—*Relation of cost of woolen lining per yard to selling price of suits.*

Net selling price of suit.	Cost per yard body lining.	Net selling price of suit.	Cost per yard body lining.
$7.90	$0.325	$12.83	$0.35
8.37	.35	13.06	.36
9.18	.318	13.92	.45
9.30	.32	13.95	.425
9.30	.35	14.25	.40
9.74	.325	15.31	.425
10.09	.338	15.31	.50
10.72	.32	15.39	.382
11.16	.37	15.67	.45
11.40	.325	17.57	.50
11.60	.325	18.19	.475
11.66	.338	18.66	.472
12.53	.425	19.59	.54
12.60	.36		

To determine the importance of woolen material in the manufacture of clothing, it is necessary to add, for all but cheap grades, about 6 per cent of the selling price for woolen linings. This means that for medium and most high grade clothing the cost of woolen materials used is 40 per cent of the selling price or more. For cheap-grade clothing the cloth cost alone is 40 per cent. Thus for most clothing sold the cost of woolen material is fully 40 per cent of the selling price.

RELATION OF THE COST OF CLOTH TO THE COST OF CLOTHING.

Among the manufacturers whose establishments were studied, the cloth used ranged in price per yard from 45 cents in a suit selling for $4.65 retail to $2.76 in one selling wholesale at $25 regular, or the equivalent of $35 to $40 retail. In overcoats the highest price cloth was $5.18 per yard, in an overcoat selling at $40 wholesale. Both higher and lower priced cloths were used by the establishments visited, but not in garments having a wide sale. In the main the cloths used in manufacturing men's clothing range in price from 65 cents to $2. The average priced garments using the former cloth sells at $5.50 at wholesale and about $8 retail; the average priced garment in which the $2 cloth is used is about $20 wholesale, or about $30 retail. In garments forming the bulk of the ready-made clothing production, those sold at retail from $10 to $20, the cloth price would range from

65 cents to about $1.50. The retail equivalents for wholesale prices as given here are on the assumption that the retail price adds 50 per cent to the cost at wholesale.

In an accompanying table (Table 17) there are shown the details bearing on the relation of the cost of cloth per yard to the net selling price at wholesale. There is shown for each price of cloth the prices of garments into which it enters, and also the cost of the trimmings and the direct labor cost or contract price.

For the cloths most extensively used in the specimen garments for which the data are available a summary has been made showing the average price of the garments into which certain priced cloths go, and also the maximum and minimum priced garments in which such cloths are used.

TABLE 16.—*Relation of cloth cost to total cost of suits—Summary—Net selling price of suits and details of cost according to the price of cloth per yard.*

[Average maximum and minimum price for suits using cloth at specified prices from $0.75 to $2 per yard.]

Range of cloth cost per yard.	Item.[1]	Net wholesale selling price.	Estimated retail price.[2]	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[3]	Total cost of material and direct labor.
$0.75 to $0.80...	Average.......	$8.49	$13.29	$2.70	$1.66	$4.36	$2.40	$6.76
	Highest.......	11.66	18.00	2.92	2.37	5.18	4.34	9.51
	Lowest........	5.58	9.00	2.52	1.03	3.69	1.38	5.16
	Variation.	6.08	9.00	.40	1.34	1.49	2.96	4.35
.81 to .85...	Average.......	8.68	13.16	2.94	1.79	4.73	2.33	7.06
	Highest.......	10.67	16.00	3.08	2.03	5.13	3.03	8.14
	Lowest	7.35	11.00	2.83	1.35	4.33	1.85	6.18
	Variation.	3.32	5.00	.25	.68	.80	1.18	1.96
.86 to .90...	Average.......	9.13	14.20	3.10	1.79	4.89	2.34	7.23
	Highest.......	12.08	19.00	3.26	2.57	5.69	3.60	9.29
	Lowest........	6.36	10.00	2.89	1.10	3.99	1.33	5.62
	Variation.	5.72	9.00	.37	1.47	1.70	2.27	3.67
.91 to .95...	Average.......	10.23	15.71	3.22	2.02	6.99	3.34	10.33
	Highest.......	12.55	19.00	3.35	2.57	5.92	3.73	9.46
	Lowest........	6.90	11.00	3.07	1.10	4.22	1.59	7.18
	Variation.	5.65	8.00	.28	1.47	1.70	2.14	2.28
.96 to 1.00...	Average.......	10.93	16.50	3.52	2.13	5.66	3.21	8.87
	Highest.......	12.60	19.00	3.65	2.36	5.97	4.86	10.74
	Lowest........	9.30	14.00	3.46	1.80	5.28	2.22	7.77
	Variation.	3.30	5.00	.19	.56	.69	2.64	2.97
1.01 to 1.05...	Average.......	8.84	13.75	3.49	1.66	5.15	2.11	7.26
	Highest.......	9.77	15.00	3.71	2.12	5.83	2.45	8.26
	Lowest........	7.50	12.00	3.34	1.13	4.59	1.69	6.28
	Variation.	2.27	3.00	.37	.99	1.26	.76	1.98
1.06 to 1.10...	Average.......	10.39	15.92	3.77	1.92	5.69	2.74	8.43
	Highest.......	14.86	23.00	3.99	2.55	6.54	4.09	10.52
	Lowest........	7.72	12.00	3.57	1.25	4.90	1.56	6.76
	Variation.	7.14	11.00	.42	1.30	1.64	2.53	3.76
1.11 to 1.15...	Average.......	11.52	17.57	3.88	2.08	5.96	2.29	9.26
	Highest.......	13.65	21.00	4.08	2.57	6.43	4.86	11.19
	Lowest........	9.30	14.00	3.58	1.53	5.31	2.39	7.70
	Variation.	4.35	7.00	.50	1.04	1.12	2.47	3.49

[1] The amount entered opposite "variation" is the difference between the maximum and minimum.

[2] Estimates based on the assumption that retail prices are 50 per cent above wholesale prices.

[3] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

TABLE 16.—*Relation of cloth cost to total cost of suits—Summary—Net selling price of suits and details of cost according to the price of cloth per yard*—Continued.

Range of cloth cost per yard.	Item.	Net wholesale selling price.	Estimated retail price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.	Total cost of material and direct labor.
$1.16 to $1.20...	Average.......	$11.79	$18.17	$4.13	$2.24	$6.36	$3.19	$9.56
	Highest.......	14.25	22.00	4.35	2.75	7.10	4.12	11.10
	Lowest........	8.50	13.00	3.95	1.25	5.22	1.82	7.04
	Variation.	5.75	9.00	.40	1.50	1.88	2.30	4.06
1.21 to 1.25...	Average.......	11.44	17.71	4.35	1.98	6.33	2.97	9.29
	Highest.......	14.86	23.00	4.53	2.42	6.95	4.38	11.33
	Lowest........	9.80	15.00	4.10	1.75	5.95	2.30	8.43
	Variation.	5.06	8.00	.43	.67	1.00	2.08	2.90
1.26 to 1.30...	Average.......	12.47	19.27	4.43	2.18	6.61	3.36	9.98
	Highest.......	16.26	25.00	4.62	2.90	7.40	5.04	12.09
	Lowest........	9.00	14.00	4.25	1.44	5.76	1.43	7.19
	Variation.	7.26	11.00	.37	1.46	1.64	3.61	4.90
1.31 to 1.35...	Average.......	13.53	20.82	4.67	2.41	7.08	3.65	10.73
	Highest.......	16.26	25.00	4.90	2.85	7.75	5.28	12.46
	Lowest........	9.30	18.00	4.47	1.53	6.09	2.39	8.48
	Variation.	6.96	7.00	.43	1.32	1.66	2.89	3.98
1.36 to 1.40...	Average.......	14.97	22.83	4.97	2.44	7.41	4.41	11.82
	Highest.......	17.19	26.00	5.12	2.70	7.68	5.47	13.15
	Lowest........	12.53	19.00	4.74	2.10	7.18	3.24	10.72
	Variation.	4.66	7.00	.38	.60	.50	2.23	2.43
1.41 to 1.45...	Average.......	13.37	20.43	4.97	2.34	7.31	3.32	10.63
	Highest.......	15.14	23.00	5.15	3.17	8.32	3.77	11.57
	Lowest........	11.47	18.00	4.81	1.64	6.61	2.50	9.11
	Variation.	3.67	5.00	.34	1.53	1.71	1.27	2.46
1.46 to 1.50...	Average.......	14.61	22.14	5.27	2.26	7.53	3.84	11.38
	Highest.......	18.58	28.00	5.57	3.00	8.57	5.41	13.59
	Lowest........	10.00	15.00	4.98	1.35	6.41	2.08	8.49
	Variation.	8.58	13.00	.59	1.65	2.16	3.33	5.10
1.51 to 1.55...	Average.......	14.62	22.25	5.26	2.64	7.90	3.62	11.52
	Highest.......	15.25	23.00	5.52	3.01	8.53	4.12	11.81
	Lowest........	13.95	21.00	5.12	2.40	7.68	3.15	11.17
	Variation.	1.30	2.00	.40	.61	.85	.97	.64
1.56 to 1.00...	Average.......	15.05	23.00	5.57	2.41	7.98	4.15	12.13
	Highest.......	17.20	26.00	5.78	2.60	8.38	5.72	13.89
	Lowest........	11.47	18.00	5.38	2.00	7.40	3.04	10.44
	Variation.	5.73	8.00	.40	.60	.98	2.68	3.45
1.61 to 1.65...	Average.......	13.08	20.00	5.48	2.28	7.76	3.27	11.03
	Highest.......	13.76	21.00	5.49	2.40	7.87	3.31	11.18
	Lowest........	12.39	19.00	5.47	2.15	7.64	3.23	10.87
	Variation.	1.37	2.00	.02	.25	.23	.08	.31
1.66 to 1.70...	Average.......	17.00	26.00	6.10	2.76	8.86	4.67	13.53
	Highest.......	19.51	30.00	6.12	3.00	9.07	5.82	14.71
	Lowest........	13.92	21.00	6.07	2.51	8.63	3.59	12.22
	Variation.	5.59	9.00	.05	.49	.44	2.23	2.49
1.71 to 1.75...	Average.......	16.09	24.43	6.16	2.48	8.65	4.16	12.81
	Highest.......	18.66	28.00	6.35	3.01	9.24	5.46	14.51
	Lowest........	12.25	19.00	5.94	1.68	7.81	2.50	10.31
	Variation.	6.41	9.00	.41	1.33	1.43	2.96	4.20
1.76 to 1.80...	Average.......	16.21	24.83	6.14	2.69	8.83	3.82	12.65
	Highest.......	19.47	30.00	6.30	3.39	9.61	5.20	14.81
	Lowest........	12.39	19.00	5.99	2.15	8.14	3.23	11.87
	Variation.	7.08	11.00	.31	1.24	1.47	1.97	3.44

TABLE 16.—*Relation of cloth cost to total cost of suits—Summary—Net selling price of suits and details of cost according to the price of cloth per yard*—Continued.

Range of cloth cost per yard.	Item.	Net wholesale selling price.	Estimated retail price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.	Total cost of material and direct labor.
$1.81 to $1.85...	Average.......	$16.58	$25.00	$6.67	$3.05	$9.72	$4.68	$14.40
	Highest.......	17.51	27.00	6.77	3.41	10.12	7.20	17.32
	Lowest.......	15.31	23.00	6.48	2.55	9.32	3.50	13.16
	Variation.	2.20	4.00	.29	.86	.80	3.70	4.16
1.86 to 1.90...	Average[1]......	16.74	25.00	6.80	3.09	9.89	3.80	13.69
1.91 to 1.95...	Average[1]......	19.59	30.00	6.69	3.14	9.83	4.17	14.00
1.96 to 2.00...	Average.......	19.31	29.00	6.96	2.82	9.77	4.55	15.31
	Highest.......	21.85	33.00	7.22	2.95	10.03	5.88	15.91
	Lowest.......	14.70	22.00	6.70	2.70	9.64	3.05	12.75
	Variation.	7.15	11.00	.52	.25	.39	2.83	3.16

[1] One specimen garment.

Two things are shown by this table. The average price of garments rises with the price of the cloth used. There are some few exceptions, but these are due to lack of an adequate number of specimen garments at such points in the ascending scale of cloth prices and prices of garments.

Far more striking though less significant a feature of this table is the wide variation in the price of garments into which the same priced cloths enter. Thus 75 to 80 cent cloths are used in garments sold for as high as $11.66 and as low as $5.58. There is a margin of $3.32 between the cheapest and most expensive suit in which 81 to 85 cent cloths are used—a margin equal to more than 100 per cent of the entire cloth cost. For 86 to 90 cent and 91 to 95 cent cloths, the difference in price between cheapest and the most expensive suit is about $6. Such a variation is characteristic throughout. Practically every priced cloth used enters into garments varying in price by more than the total cost of all the cloth used in the garments. Nevertheless the significant point not to be lost sight of is the fact that, all in all, the cost of cloth is the largest factor in the cost of clothing and particularly in the most popular grades. This is evident from the fact that the average price per suit and the average cost of the cloth used in it rise together.

This table indicates that the determining factor in the price of clothing is the cloth cost. This is so directly and indirectly. The cost of cloth directly affects the price of the garment by the amount expended for this purpose. The manufacturer, furthermore, determines the type of trimmings to be used and the amount of labor to be put on the garment according to the grade of the cloth he uses. To a considerable extent the same trimmings, or trimmings varying slightly in cost, are used in suits or overcoats differing in price by as much as $2 or $3. In the same way the labor cost, particularly for pants and vests, is frequently the same for garments differing very widely in price. In such cases the varying costs of cloth is the only ground of difference in selling price.

The great divergence found in the price of garments in which cloths bought for the same prices are used, is due to the different policy pursued by different types of clothiers. Producers of cheap and medium clothing emphasize the cloth, producers of higher grade clothing lay more stress on the trimming, on style, and on workmanship. For each type of manufacturer, however, the difference in cloth cost is very largely the basis for the difference in price.

In the higher priced suits made from a given cloth, the compensation, where there is such compensation, is partly made in the cost of trimmings of which the cloth is used. In greater part the compensation is in the higher labor cost, more work being put upon the garment. Earlier analysis showed, however, that some part of the difference arises from the larger margin between the factory price and the selling cost of higher grade garments. Producers of high-grade clothing spend far more for advertising and for the expense of selling than those who manufacture cheaper garments. As regards the essential qualities required of clothing, the consumer who wears popular priced garments gets more for his money.

The accompanying table shows for the different cloths arranged in order of cloth cost per yard, the price of the suits in which the cloth enters, the number of yards and the total cost for the cloth used, and the other items of cost. This table furnishes an abstract of the data for specimen garments secured for wholesale clothing.

TABLE 17a.—*Relation of cloth cost to total cost of suits—Details for all specimen garments—Cost of cloth per yard, yardage, net selling price of suit, and details of cost.*

[Arranged according to cloth cost per yard.]

Reference No.	Cloth cost per yard net.	Yards per suit	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Total cost of material and direct labor.	Wholesale selling price.	
								Gross.	Net.
1	$0.45	3.25	$1.46	$0.58	$2.04	$0.95	$2.99	$3.75	$3.75
2	.52	3.25	1.69	.69	2.38	1.05	3.43	4.50	4.50
3	.65	3.25	2.11	1.00	3.11	1.26	4.37	5.50	5.50
9	.67	3.375	2.27	1.13	3.40	1.56	4.96	7.00	6.51
4	.67	3.375	2.27	1.13	3.40	1.56	4.96	6.00	5.58
14	.67	3.54	2.37	1.64	4.01	1.82	5.83	7.50	6.97
11	.71	3.375	2.40	1.44	3.84	1.26	5.10	6.75	6.75
10	.75	3.375	2.52	1.13	3.65	1.56	5.21	7.00	6.51
5	.75	3.375	2.52	1.13	3.65	1.56	5.21	6.00	5.58
12	.775	3.375	2.62	1.44	4.06	1.38	5.44	6.75	6.75
72	.78	3.65	2.85	2.26	5.11	3.24	8.35	12.50	11.66
6	.7875	3.375	2.66	1.03	3.69	1.47	5.16	6.50	5.93
61	.80	3.50	2.80	2.37	5.17	4.34	9.51	12.50	11.38
73	.80	3.65	2.92	2.26	5.18	3.24	8.42	12.50	11.66
34	.81	3.50	2.83	2.30	5.13	2.40	7.53	10.00	9.30
21	.814	3.50	2.85	1.75	4.60	2.26	6.86	9.00	8.37
20	.84	3.50	2.94	1.60	4.54	2.24	6.78	8.50	7.90
15	.85	3.50	2.98	1.35	4.83	1.85	6.18	7.50	7.35
23	.85	3.50	2.98	1.72	4.70	2.19	6.89	8.50	8.50
55	.85	3.625	3.08	2.03	5.11	3.03	8.14	11.00	10.67
8	.855	3.375	2.89	1.10	3.99	1.63	5.62	7.00	6.37
18	.875	3.31	2.90	1.41	4.31	1.33	5.64	8.50	7.65
56	.875	3.50	3.06	2.00	5.06	2.55	7.61	11.50	10.69
77	.89	3.50	3.12	2.57	5.69	3.60	9.29	13.00	12.08
7	.90	3.375	3.04	1.10	4.14	1.63	5.77	7.00	6.36
16	.90	3.375	3.04	1.30	4.34	1.68	6.02	8.00	7.44
50	.90	3.50	3.15	2.00	5.15	2.68	7.83	10.50	10.08
35	.90	3.625	3.26	1.82	5.08	2.37	7.45	10.00	9.30
47	.90	3.625	3.26	2.39	5.65	2.67	8.32	10.50	9.95
62	.90	3.625	3.26	2.25	5.51	3.28	8.79	12.00	11.40

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[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

TABLE 17a.—*Relation of cloth cost to total cost of suits—Details for all specimen garments—Cost of cloth per yard, yardage, net selling price of suit, and details of cost*—Con.

Reference No.	Cloth cost per yard net.	Yards per suit.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.	Total cost of material and direct labor.	Wholesale selling price.	
								Gross.	Net.
28	$0.91	$3.375	$3.07	$1.70	$4.77	$2.59	$7.36	$10.00	$9.18
74	.91	3.50	3.19	2.26	5.45	2.87	8.32	12.50	11.82
13	.925	3.375	3.12	1.10	4.22	1.59	5.81	6.90	6.90
86	.925	3.42	3.16	2.57	5.73	3.73	9.46	13.50	12.55
54	.925	3.625	3.35	2.57	5.92	3.37	9.29	11.00	10.23
36	.95	3.50	3.33	1.60	4.93	2.25	7.18	10.00	9.30
69	.95	3.50	3.33	2.36	5.69	2.95	8.64	12.50	11.62
85	.96	3.60	3.46	2.36	5.82	3.54	9.36	13.50	12.54
37	.995	3.50	3.48	1.80	5.28	2.49	7.77	10.00	9.30
38	1.00	3.50	3.50	2.08	5.58	2.22	7.80	10.00	9.30
48	1.00	3.50	3.50	1.98	5.48	2.88	8.36	10.00	10.00
75	1.00	3.625	3.63	2.25	5.88	4.86	10.74	13.00	11.83
90	1.00	3.65	3.65	2.32	5.97	3.24	9.21	13.50	12.60
44	1.0125	3.66	3.71	2.12	5.83	2.43	8.26	10.50	9.74
17	1.025	3.375	3.46	1.13	4.59	1.69	6.28	7.50	7.50
22	1.025	3.375	3.46	1.50	4.96	1.86	6.82	9.00	8.37
45	1.05	3.18	3.34	1.90	5.24	2.45	7.69	10.50	9.77
29	1.057	3.375	3.57	1.70	5.27	2.59	7.86	10.00	9.18
30	1.057	3.375	3.57	1.70	5.27	2.59	7.86	10.00	9.18
25	1.06	3.375	3.58	1.62	5.20	1.56	6.76	8.55	8.55
57	1.06	3.625	3.84	1.84	5.68	3.12	8.80	11.50	10.70
117	1.06	3.66	3.89	2.54	6.43	4.09	10.52	16.00	14.86
19	1.08	3.375	3.65	1.25	4.90	1.93	6.83	8.50	7.72
31	1.08	3.375	3.65	1.70	5.35	2.59	7.94	10.00	9.18
42	1.08	3.50	3.78	2.02	5.80	2.66	8.46	10.00	9.46
93	1.08	3.60	3.89	2.32	6.21	3.24	9.45	14.00	13.06
58	1.10	3.50	3.85	2.13	5.98	2.42	8.40	11.50	10.70
33	1.10	3.50	3.86	1.75	5.61	2.75	8.36	10.00	9.25
91	1.10	3.625	3.99	2.55	6.54	3.40	9.94	13.50	12.83
39	1.115	3.50	3.90	1.58	5.48	2.50	7.98	10.00	9.30
40	1.12	3.375	3.78	1.53	5.31	2.39	7.70	10.00	9.30
59	1.12	3.50	3.92	2.20	6.12	3.04	9.16	12.00	11.16
79	1.12	3.625	4.06	2.03	6.09	3.18	9.27	12.50	12.13
88	1.125	3.18	3.58	2.42	6.00	3.40	9.40	13.50	12.56
99	1.125	3.625	4.08	2.25	6.33	4.86	11.19	15.00	13.65
87	1.13	3.42	3.86	2.57	6.43	3.72	10.15	13.50	12.55
32	1.17	3.375	3.95	1.70	5.65	2.59	8.24	10.00	9.18
24	1.175	3.375	3.97	1.25	5.22	1.82	7.04	8.50	8.50
94	1.195	3.42	4.08	2.57	6.65	3.72	10.37	14.50	13.48
95	1.195	3.42	4.08	2.57	6.65	4.12	10.77	13.48	13.48
76	1.20	3.625	4.35	2.59	6.94	2.92	9.86	12.50	11.85
111	1.20	3.625	4.35	2.75	7.10	4.00	11.10	15.00	14.25
51	1.215	3.375	4.10	1.85	5.95	2.59	8.54	11.00	10.09
89	1.23	3.625	4.46	2.12	6.58	3.01	9.59	13.50	12.56
52	1.25	3.375	4.22	1.85	6.07	2.59	8.66	11.00	10.09
46	1.25	3.50	4.38	1.75	6.13	2.30	8.43	10.00	9.80
60	1.25	3.50	4.38	1.80	6.18	2.60	8.78	12.00	11.16
67	1.25	3.50	4.38	2.06	6.44	3.31	9.75	11.50	11.50
118	1.25	3.625	4.53	2.42	6.95	4.38	11.33	16.00	14.86
27	1.26	3.375	4.25	1.65	5.90	2.25	8.15	10.00	9.08
53	1.26	3.375	4.25	1.85	6.10	2.59	8.69	11.00	10.09
68	1.26	3.66	4.62	2.28	6.90	3.03	9.93	12.50	11.60
133	1.27	3.625	4.60	2.45	7.05	5.04	12.09	17.50	16.26
26	1.28	3.375	4.32	1.44	5.76	1.43	7.19	9.00	9.00
83	1.28	3.50	4.48	2.05	6.53	3.13	9.66	13.50	12.49
121	1.28	3.50	4.48	2.59	7.07	4.49	11.56	16.50	15.01
98	1.29	3.42	4.41	2.57	6.98	4.12	11.10	13.49	13.49
113	1.29	3.42	4.41	2.57	6.98	4.12	11.10	15.50	14.41
134	1.29	3.50	4.50	2.90	7.40	4.53	11.93	17.50	16.26
43	1.30	3.375	4.39	1.65	6.04	2.26	8.30	10.50	9.53
130	1.32	3.50	4.62	2.52	7.14	3.57	10.71	16.50	15.61
129	1.32	3.60	4.78	2.77	7.55	3.74	11.29	16.50	15.39
63	1.33	3.375	4.49	2.00	6.49	3.04	9.53	12.50	11.47
109	1.33	3.42	4.55	2.57	7.12	3.72	10.84	15.00	14.02
135	1.33	3.50	4.65	2.53	7.18	5.28	12.46	17.50	16.26
78	1.33	3.50	4.66	2.69	7.35	3.25	10.60	13.00	12.09
41	1.35	3.375	4.56	1.53	6.09	2.39	8.48	10.00	9.30
96	1.35	3.42	4.62	2.57	7.19	4.12	11.31	13.48	13.48
70	1.35	3.50	4.73	2.08	6.81	2.65	9.46	12.50	11.63
108	1.35	3.625	4.90	2.37	7.27	4.06	11.33	15.00	13.95
131	1.35	3.625	4.90	2.85	7.75	4.80	12.05	16.50	15.67

TABLE 17a.—*Relation of cloth cost to total cost of suits—Details for all specimen garments—Cost of cloth per yard, yardage, net selling price of suit, and details of cost*—Con.

Reference No.	Cloth cost per yard net.	Yards per suit.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.	Total cost of material and direct labor.	Wholesale selling price.	
								Gross.	Net.
140	$1.38	$3.50	$4.81	$2.60	$7.41	$5.32	$12.73	$18.50	$17.19
127	1.38	3.625	4.98	2.70	7.68	5.47	13.15	16.50	15.34
128	1.40	3.42	4.79	2.57	7.36	4.94	12.30	16.50	15.38
110	1.40	3.625	5.08	2.31	7.39	3.38	10.77	14.50	14.07
125	1.40	3.625	5.08	2.10	7.18	4.12	11.30	16.50	15.31
84	1.40	3.66	5.12	2.36	7.48	3.24	10.72	13.50	12.53
71	1.42	3.50	4.97	1.64	6.61	2.50	9.11	12.50	11.63
104	1.42	3.625	5.15	3.17	8.32	3.25	11.57	15.00	13.95
64	1.43	3.375	4.83	2.00	6.83	3.04	9.87	12.50	11.47
105	1.43	3.42	4.89	2.57	7.46	3.73	11.19	15.00	13.95
123	1.43	3.42	4.89	2.57	7.46	3.72	11.18	16.50	15.14
97	1.45	3.50	5.08	2.13	7.21	3.25	10.46	14.50	13.48
108	1.45	3.50	5.08	2.29	7.37	3.77	11.14	14.00	14.00
65	1.48	3.375	5.00	2.00	7.00	3.04	10.04	12.50	11.47
149	1.48	3.625	5.36	2.64	8.00	5.41	13.41	20.00	18.58
115	1.49	3.50	5.22	2.22	7.44	3.05	10.49	15.50	14.42
141	1.49	3.75	5.59	3.00	8.59	5.02	13.61	18.50	17.20
49	1.50	3.375	5.06	1.35	6.41	2.08	8.49	10.00	10.00
92	1.50	3.50	5.25	2.00	7.25	2.90	10.15	14.00	13.02
143	1.50	3.625	5.44	2.65	8.09	5.41	13.50	18.00	17.38
124	1.51	3.42	5.16	2.57	7.73	4.12	11.85	15.25	15.25
119	1.51	3.42	5.16	2.57	7.73	3.72	11.45	16.00	14.88
106	1.51	3.50	5.28	2.40	7.68	3.49	11.17	15.00	13.95
114	1.53	3.625	5.55	3.01	8.56	3.15	11.71	15.50	14.41
112	1.58	3.42	5.38	2.57	7.95	3.72	11.67	15.50	14.35
142	1.58	3.625	5.71	2.46	8.17	5.72	13.89	18.50	17.20
66	1.60	3.375	5.40	2.00	7.40	3.04	10.44	12.50	11.47
139	1.60	3.625	5.78	2.60	8.38	4.12	12.50	18.50	17.17
100	1.62	3.375	5.47	2.40	7.87	3.31	11.18	15.00	13.76
81	1.63	3.375	5.49	2.15	7.64	3.23	10.87	13.50	12.39
102	1.67	3.66	6.12	2.51	8.63	3.59	12.22	15.00	13.92
154	1.67	3.66	6.12	2.77	8.89	5.82	14.71	21.00	19.51
145	1.68	3.625	6.07	3.00	9.07	4.60	13.67	18.50	17.57
152	1.71	3.47	5.94	3.01	8.95	4.67	13.62	20.00	18.66
107	1.75	3.50	6.13	1.68	7.81	2.50	10.31	15.00	13.95
80	1.75	3.50	6.13	2.25	8.38	2.80	11.18	12.50	12.25
132	1.75	3.50	6.13	2.35	8.48	4.36	12.84	16.00	16.00
122	1.75	3.50	6.13	2.50	8.63	5.03	13.66	16.50	15.01
148	1.75	3.625	6.34	2.90	9.24	4.28	13.52	20.00	18.56
147	1.75	3.625	6.35	2.70	9.05	5.46	14.51	20.00	18.20
82	1.78	3.375	6.01	2.15	8.16	3.23	11.39	13.50	12.39
150	1.78	3.42	6.09	2.95	9.04	3.72	12.76	20.00	18.60
146	1.78	3.47	6.17	3.01	9.18	4.16	13.34	19.50	18.19
153	1.78	3.50	6.22	3.39	9.61	5.20	14.81	20.50	19.47
101	1.80	3.375	6.08	2.40	8.48	3.31	11.79	15.00	13.76
120	1.80	3.50	6.30	2.25	8.55	3.30	11.85	16.00	14.88
144	1.85	3.50	6.48	2.84	9.32	4.19	13.51	18.50	17.51
136	1.85	3.625	6.71	3.41	10.12	3.50	13.62	18.00	16.74
137	1.85	3.625	6.71	3.41	10.12	7.20	17.32	18.00	16.74
126	1.85	3.66	6.77	2.55	9.32	3.84	13.16	16.50	15.31
138	1.88	3.625	6.80	3.09	9.89	3.80	13.69	18.00	16.74
155	1.91	3.50	6.69	3.14	9.83	4.17	14.00	21.00	19.59
151	1.96	3.42	6.70	2.95	9.65	4.12	13.77	20.00	18.60
161	1.96	3.50	6.86	2.78	9.64	4.71	14.35	23.00	21.36
162	1.97	3.66	7.22	2.81	10.03	5.88	15.91	23.50	21.85
116	2.00	3.50	7.00	2.70	9.70	3.05	12.75	15.00	14.70
156	2.00	3.50	7.00	2.85	9.85	4.99	14.84	22.00	20.02
165	2.11	3.375	7.12	3.11	10.23	7.37	17.60	24.50	22.76
157	2.13	3.625	7.70	3.05	10.75	5.51	16.26	22.00	20.02
160	2.24	3.50	7.84	3.23	11.07	4.39	15.46	22.50	21.30
158	2.25	3.42	7.70	3.50	11.20	4.12	15.32	22.00	20.46
163	2.25	3.625	8.16	3.75	11.91	4.28	16.19	24.00	22.27
166	2.28	3.60	8.15	2.93	11.08	5.57	16.65	25.00	23.22
167	2.35	3.625	8.52	6.18	14.70	4.10	18.80	25.00	23.25
169	2.36	3.437	8.11	3.26	11.37	6.08	17.45	26.00	24.15
159	2.55	3.625	9.25	3.18	12.43	4.10	16.53	22.00	20.46
164	2.75	3.625	9.97	3.15	13.12	5.56	18.68	25.00	22.75
168	2.76	3.50	9.66	3.23	12.89	4.92	17.81	25.00	23.66

TABLE 17b.—*Relation of cloth cost to total cost of overcoats—Details for all specimen garments—Cost of cloth per yard, yardage, net selling price of overcoat, and details of cost.*

[Arranged according to cloth cost per yard.]

Reference No.	Cloth cost per yard, net.	Yards per overcoat.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Total cost of material and direct labor.	Wholesale selling price.	
								Gross.	Net.
5	$0.70	3.00	$2.10	$2.15	$4.25	$1.53	$5.78	$9.00	$8.64
15	.80	2.00	1.60	2.37	3.97	4.34	8.31	12.50	11.38
13	.81	3.06	2.48	2.95	5.43	2.55	7.98	11.50	10.46
2	.82	2.26	1.85	1.67	3.52	1.25	4.77	7.50	6.97
1	.85	2.625	2.24	1.44	3.68	1.32	5.00	6.75	6.48
4	.86	2.75	2.37	1.95	4.32	2.54	6.86	10.00	9.25
8	.86	3.00	2.57	2.11	4.68	1.69	6.37	8.50	7.73
3	.90	3.00	2.70	1.85	4.55	1.43	5.98	7.50	7.50
16	.95	3.06	2.91	3.16	6.07	2.90	8.97	13.50	12.28
10	.95	3.125	2.97	3.15	6.12	2.59	8.71	10.50	9.98
9	1.03	2.21	2.28	2.69	4.97	2.05	7.02	10.00	9.30
19	1.035	2.50	2.59	3.60	6.19	3.72	9.91	13.50	12.55
6	1.05	2.875	3.02	1.81	4.83	1.37	6.20	9.00	8.64
7	1.06	3.00	3.17	2.50	5.67	2.26	7.93	10.00	9.10
11	1.10	3.25	3.58	1.42	5.00	1.32	6.32	10.50	10.08
18	1.11	3.42	3.79	2.57	6.36	4.94	11.30	13.25	12.40
20	1.13	2.50	2.82	3.60	6.42	3.41	9.83	13.50	12.55
12	1.13	2.875	3.23	2.50	5.73	2.50	8.23	11.00	10.23
22	1.25	2.75	3.44	3.05	6.49	4.44	10.93	15.00	13.65
29	1.30	2.625	3.41	4.18	7.59	3.36	10.95	16.50	15.01
14	1.40	3.00	4.20	3.24	7.44	2.36	9.80	12.50	11.32
30	1.40	3.06	4.29	3.45	7.74	3.40	11.14	16.50	15.01
21	1.43	2.50	3.58	3.60	7.18	3.72	10.90	13.50	12.55
23	1.50	2.50	3.75	3.60	7.35	3.72	11.07	15.00	13.95
17	1.58	3.00	4.73	3.22	7.95	2.36	10.31	13.50	12.28
27	1.60	2.875	4.60	4.33	8.93	2.93	11.86	16.00	14.88
24	1.63	3.00	4.88	2.05	6.93	2.50	9.43	15.00	13.95
26	1.71	2.75	4.70	3.85	8.55	3.00	11.55	15.50	14.66
35	1.75	2.75	4.81	5.30	10.11	4.54	14.65	20.00	18.20
25	1.92	2.50	4.80	3.60	8.40	3.72	12.12	15.50	14.35
28	1.92	2.50	4.80	3.60	8.40	3.72	12.12	16.00	14.88
36	1.94	3.06	5.94	3.55	9.49	4.58	14.07	20.00	18.20
38	2.00	2.47	4.94	4.50	9.44	2.60	12.04	20.00	18.60
33	2.00	2.75	5.50	3.50	9.00	4.54	13.54	18.00	16.38
31	2.03	2.50	5.08	3.60	8.68	3.72	12.40	17.50	16.27
32	2.03	2.50	5.08	3.60	8.68	3.72	12.40	17.50	16.28
42	2.10	2.75	5.78	8.05	13.83	3.11	16.94	24.50	23.18
34	2.14	2.50	5.35	4.50	9.85	3.72	13.57	18.00	16.74
37	2.50	2.75	6.88	3.50	10.38	4.49	14.87	20.00	18.20
39	2.50	2.75	6.88	4.15	11.03	2.86	13.89	20.00	19.46
40	2.70	3.06	8.27	3.55	11.82	4.58	16.40	25.00	22.75
41	2.75	2.75	7.56	6.10	13.66	4.54	18.20	25.00	22.75
43	3.30	2.875	9.49	4.65	14.14	3.05	17.19	24.00	23.32
44	4.05	2.50	10.13	8.90	19.03	3.72	22.75	34.00	31.62
45	5.18	2.50	12.95	10.10	23.05	3.72	26.77	40.00	37.20

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[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

TABLE 17c.—*Relation of cloth cost to total cost of pants—Details for all specimen garments—Cost of cloth per yard, yardage, net selling price of pants, and details of cost.*

[Arranged according to cloth cost per yard.]

Reference No.	Cloth cost per yard, net.	Yards per pants.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Total cost of material and direct labor.	Wholesale selling price.	
								Gross.	Net.
1	$0.58	1.26	$0.72	$0.14	$0.86	$0.30	$1.16	$1.50	$1.35
2	.63	1.34	.84	.13	.97	.52	1.49	2.00	1.80
5	.83	1.34	1.11	.16	1.27	.58	1.85	2.50	2.28
3	.85	1.22	1.04	.20	1.24	.39	1.63	2.25	2.09
4	.90	1.29	1.16	.20	1.36	.39	1.75	2.25	2.09
7	1.03	1.34	1.37	.18	1.55	.57	2.12	3.00	2.73
6	1.25	1.29	1.61	.22	1.83	.49	2.32	3.00	2.70
8	1.40	1.29	1.81	.25	2.06	.58	2.64	3.50	3.15
9	1.70	1.29	2.19	.25	2.44	.58	3.02	4.00	3.64
10	2.00	1.34	2.68	.23	2.91	.65	3.56	5.00	4.55

CONCLUSIONS AS TO MEN'S CLOTHING.

The complete investigation of men's clothing indicates that at least 40 per cent of the wholesale selling price of garments is expended on cloth and woolen linings. Assuming retail prices to be at least 50 per cent higher than wholesale prices, it is clear that about 25 per cent of the price paid by the consumer of ready-made clothing goes for woolens. The data collected also indicated further that the cost of woolens is considerably more important in the popular-priced garments having wide sale than in more expensive clothing.

COMPLETE COST OF TYPICAL MEN'S GARMENTS.

The board now presents certain typical specimens of men's clothing, traced not only through the processes of clothing manufacture, but followed through cloth making and the manufacture of yarn as well. In two cases, one where the fabric is a worsted and one where the fabric is a woolen, the costs are carried through to the yarn. In one suit the costs are extended through to the raw wool itself. These are typical, and it is therefore not deemed necessary to trace the others beyond the manufacture of the cloth that goes into the garments. There have been selected for such detail five 3-piece suits representing the five general grades of manufacture. These are—

A.—Regular wholesale price	$16.50
Net wholesale price (average realized)	15.39
Retail price	23.00
B.—Regular wholesale price	12.50
Net wholesale price (average realized)	11.66
Retail price	18.00
C.—Wholesale price (net)	5.50
Retail price	8.50
D.—Retail price	9.35
E.—Regular wholesale price	24.00
Net wholesale price (average realized)	22.27
Retail price	35.00

There is also given a standard single-breasted overcoat—

F.—Regular wholesale price	$13.50
Net wholesale price (average realized)	12.55
Retail price	20.00

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[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

These retail prices are taken as 50 per cent more than the net wholesale price, which the board considers a fair estimate of the lowest figures at which such garments are sold. In certain cases it has been found that the retail price ran much higher than this 50 per cent.

A.—Three-Piece Suit.

Regular wholesale price, $16.50.
Net wholesale price (amount realized after deducting average discount), $15.39.
Retail price, $23 and up.
Cloth: Fancy worsted.

Clothing manufacture.

COST OF STOCK.

Trimmings: Body lining, $0.38½ per yard; sleeve lining, $0.18 per yard.
Number of yards of cloth per suit: (*a*) Coat 1.8; (*b*) pants, 1.35; (*c*) vest, 0.45.
Cost of cloth used in suit: (*a*) Per yard, $1.328; (*b*) total, $4.78.

Items.	Coat.	Pants.	Vest.
Cost of cloth	$2.390	$1.793	$0.597
Cost of trimmings	1.963	.278	.527
	4.353	2.071	1.124
Credit waste	.024	.018	.006
Total stock cost	4.329	2.053	1.118
Add freight	.025	.019	.006
Total	4.354	2.072	1.124

CONVERSION COST.

Items.	Coat.	Pants.	Vest.	Suit.
Sponging and examining	$0.040	$0.030	$0.010	$0.08
Cutting	.146	.109	.037	.292
Trimming	.034	.025	.008	.067
Fitting	.055	.010	.030	.095
Operating	.380	.255	.188	.823
Basting	.318	.035	.060	.413
Finishing	.345	.138	.027	.510
Button sewing	.037	.040	.023	.100
Buttonholes	.130	....	.107	.237
Pressing	.450	.150	.123	.723
Busheling	.068	.050	.025	.143
Miscellaneous	.210	.008	.005	.223
Examining finished product	.017	.013	.004	.034
Total productive labor	2.230	.863	.647	3.740

SUMMARY.

Items.	Coat.	Pants.	Vest.	Suit.
Total stock cost	$4.354	$2.072	$1.124	$7.550
Conversion cost	2.230	.863	.647	3.740
Factory expense distributed to each garment on basis of productive labor in each garment	.669	.259	.194	1.122
Total factory cost	7.253	3.194	1.965	12.412
Selling and general expense distributed to each garment on basis of ratio of total selling and general expense to total value of output	....	....	....	1.908
Final cost (factory cost plus selling and general expense)	....	....	....	14.320

Cloth making.

Name of cloth: Fancy worsted suiting.

Number of warp ends to 1 inch	73
Number of picks to 1 inch	61
Width in reed	65½
Width of goods finished	57
Weight of cloth per yard	11$\frac{1}{10}$
Pounds of cloth to 1,000 yards	693¾

COST OF STOCK FOR 1,000 YARDS.

Items.	Kind of yarn.	Count of yarn.	Pounds.	Cost of yarn per pound.	Total cost.
Warp: 39,92 ends	½ blood	2/40	394.7	$1.06	$418.38
152 ends	Silk	60/2	3.4	3.90	13.26
4,144 ends					
	Waste		10.0		10.60
Weft: 61 picks	½ blood	2/40	351.0	1.06	372.06
	Waste		8.8		9.33
Total stock			767.9		823.63

CONVERSION COST FOR 1,000 YARDS.

Productive or direct labor is actual labor applied directly to stock in its conversion, including proportion of wages paid to second hands and subforemen properly chargeable to each department.

Nonproductive or indirect labor is indirect labor employed in department, including overseers, foremen, carriers, etc., but not including general and repair labor, which are provided for under general expense.

Department materials are materials other than stock used in department; for example, soap for scouring, oil for oiling stock, dyes and chemicals for dyeing, etc.

Items.	Productive or direct labor.	Nonproductive or indirect labor.	Department materials.	Total cost.
Dressing (including drawing in)	$10.94	$1.56	$6.00	$18.50
Weaving	122.00	38.00	11.20	171.20
Burling	10.00	1.00		11.00
Mending	28.00	1.00		29.00
Remending, specking, etc	4.50	.50		5.00
Dyeing and finishing				55.00
General expense				152.00
Total conversion cost				441.70
Cost of stock				823.63
Net manufacturing cost 1,000 yards				1,265.33

Manufacturing cost per yard	$1.265
Selling price per yard (net)	1.328

Spinning 1,000 pounds of worsted yarn No. 2/40.

COST OF STOCK.

Pounds tops required for manufacture of 1,000 pounds yarn	1,136
Cost of tops per pound	$0.77
Total cost of tops	$874.72

CONVERSION COST.

Items.	Pounds of material entering each process.	Productive or direct labor.	Nonproductive or indirect labor.	Total cost.
Drawing	1,136	$20.18	$1.62	$21.80
Spinning	1,090	29.31	1.80	31.11
Twisting	1,037	24.54	1.02	25.56
Spooling	1,020	11.37	.75	12.12
Warping on jack spools	1,010	12.51	.75	13.26
General expense				110.08
Total conversion cost		97.91	5.94	213.93
Cost of stock				874.72
Less credit waste, 85, at $0.37				31.45
Net manufacturing cost (1,000 pounds)				1,057.20

Manufacturing cost per pound	$1.06

Top making.

COST OF STOCK ENTERING MANUFACTURE OF 1,000 POUNDS OF TOPS.

Items.	Pounds.	Price per pound.	Total cost.
Raw wool: Half-blood Ohio (unwashed)	3,125	$0.25	$781.25
Less credit noils and waste	180	.32	66.10
Less credit waste	50	.17	
Net total			715.15

CONVERSION COST 1,000 POUNDS OF TOPS.

Items.	Material entering each process.	Productive or direct labor.	Nonproductive or indirect labor.	Department materials.	Total cost.
	Pounds.				
Sorting and blending	3,125				
Scouring	3,125	$7.22	$5.18	$6.56	$18.96
Carding	1,250	3.37	.61		3.98
Combing	1,200	4.88	1.22	2.60	8.70
General expense					23.82
Total conversion cost		15.47	7.01	9.16	55.46
Cost of stock					715.15
Total manufacturing cost (1,000 pounds)					770.61

Manufacturing cost per pound	$0.77

COST OF WOOL.

The cloth in this suit is made of half-blood Ohio wool. It is estimated that such wool grown in the Ohio region during 1910 carried an average flock expense charge of at least 16 cents a pound. This does not include interest on the investment in the sheep; and all profits above bare production cost of the crops fed to the flock is eliminated. For this wool 23 cents a pound was received by the grower. The cost at the mill was 25 cents a pound. The amount of wool required for each yard of cloth going into this suit is 2.7 pounds. As it required 3.6 yards of cloth to make the suit, the amount of wool in the whole suit would be 9.7 pounds. At a cost of 16 cents a pound, the total cost of raising the wool for this suit would be $1.55. Out of 25 cents per pound, the price paid by the manufacturer, the woolgrower would receive $2.23, or a margin of 68 cents. While the average Ohio flock covered by the board's investigation, as reported elsewhere, consists of about 200 sheep, shearing an average of 7.6 pounds of wool, the general flock average of the entire State is but 55, and the general shearing average of the State 6.5 pounds per head. Using this as a basis, it appears that at 23 cents per pound selling price there would be a return of $1.49½ per fleece, the actual cost of which was not less than $1.04, leaving an apparent profit of 45½ cents per fleece. This indicates that the owner of 55 average sheep of shearing age in the average flock would receive $25.02 as the proceeds of a year's maintenance.

B.—THREE-PIECE SUIT.

Regular wholesale price, $12.50.
Net wholesale price (amount realized after deducting average discount), $11.66.
Retail price, $18 and up.
Cloth: Fancy woolen.

Clothing manufacture.

COST OF STOCK.

Trimmings: Body lining, $0.33¾ per yard; sleeve lining, $0.18 per yard.
Number of yards of cloth used per suit: Coat, 1.83; pants, 1.37; vest, 0.45.
Cost of cloth used in suit, per yard $0.78, total $2.847.

Items.	Coat.	Pants.	Vest.
Cost of cloth	$1.427	$1.068	$0.352
Trimmings	1.602	.278	.377
Less credit waste	.024	.018	.006
Total stock cost	3.005	1.328	.723
Freight	.025	.019	.006
Total cost	3.030	1.347	.729

CONVERSION COST.

Sponging and examining	$0.04	$0.030	$0.010
Cutting	.146	.109	.037
Trimming	.084	.025	.008
Fitting	.055	.008	.030
Operating	.400	.227	.180
Basting	.303	.023	.038
Finishing	.200	.137	.022
Button sewing	.035	.030	.018
Buttonholes	.110		.088
Pressing	.372	.128	.117
Busheling	.070	.032	.020
Miscellaneous	.118	.005	.003
Examining finished product	.017	.013	.004
Total productive labor	1.900	.767	.575

SUMMARY.

	Coat.	Pants.	Vest.	Suit.
Net stock cost	$3.030	$1.347	$0.729	$5.106
Conversion cost	1.900	.767	.575	3.242
Factory expense distributed to each garment on basis of productive labor in each garment	.570	.230	.172	.972
Total factory cost	5.500	2.344	1.476	9.320
Selling and general expense distributed on basis of ratio of total selling and general expense to total value of output				1.445
Final cost (factory cost plus selling and general expense)				10.765

Cloth making.

DESCRIPTION OF CLOTH.

Name of cloth: Fancy woolen.	
Number of warp ends to 1 inch	36
Number of picks to 1 inch	24
Width in reed	64½
Width of finished goods	55
Weight of cloth per yard	24
Pounds of cloth to 1,000 yards	1,500

COST OF STOCK FOR 1,000 YARDS OF CLOTH.

	Kind of yarn.	Count of yarn.	Pounds.	Cost of yarn per pound.	Total cost.
Warp: 2,040 ends	¼ blood and shoddy	1½ run	975	$0.29	$282.75
	Waste		58.6		17.00
Weft: 24 picks	¼ blood and shoddy	1½ run	798	.29	231.42
	Waste		52.07		15.10
Total stock			1,883.67		546.27

Cloth making—Continued.

CONVERSION COST, 1,000 YARDS.

Productive or direct labor is actual labor applied directly to stock in its conversion, including proportion of wages paid to second hands and subforemen properly chargeable to each department.

Nonproductive or indirect labor is indirect labor employed in department, including overseers, foremen, carriers, etc., but not including general and repair labor, which are provided for under general expense.

Department materials are materials other than stock, used in department; for example, soap for scouring, oil for oiling stock, dyes and chemicals for dyeing, etc.

	Productive or direct labor.	Nonproductive or indirect labor.	Department materials.	Total cost for 1,000 yards.
Spooling	$2.10			$2.10
Dressing (including drawing in)	3.00			3.00
Weaving	36.11	$5.00		41.11
Burling	4.00			4.00
Mending	5.00			5.00
Remending, specking, etc	1.50			1.50
Wet finishing	5.00		$1.50	6.50
Dry finishing and inspecting	3.00			3.00
General expense				56.50
Total conversion cost	59.71	5.00	1.50	122.71
Cost of stock				546.27
Less credit waste				7.50
Net manufacturing cost, 1,000 yards				661.48

Manufacturing cost per yard	$0.661
Selling price per yard	.78

Making of woolen yarn—No. 1½ run 1,000 pounds.

[Wool and shoddy.]

COST OF STOCK.

	Pounds.	Price per pound.	Total cost.
Wool, quarter blood	833	$0.26	$216.58
Shoddy	750	.05	37.50
Total	1,583		254.08
Less credit waste			51.36
Net cost			202.72

COST OF CONVERSION.

	Material entering each process.	Productive or direct labor.	Nonproductive or indirect labor.	Department materials.	Total cost.
	Pounds.				
Sorting and picking shoddy	750	$1.88		$0.60	$2.48
Scouring	833	.83		2.07	2.90
Stock dyeing	1,250	3.75		21.25	25.00
Mixing and picking	1,250	2.50		3.00	5.50
Carding	1,250	7.50			7.50
Spinning	1,066	9.59			9.59
General expense					35.00
Total conversion cost		26.05		26.92	87.97
Cost of stock					202.72
Total manufacturing cost, 1,000 yards					290.69

Manufacturing cost per yard	$0.29

C.—Three-Piece Suit.

Wholesale price (net), $5.50.
Retail price, $8.50 and up.
Cloth: Fancy cassimere.

Clothing manufacture.

SUIT.

Stock cost:
Trimming: Cotton Italian lining; cotton sleeve lining.
Number of yards of cloth used in suit, 3¼.

Cost of cloth, per yard, $0.65. Total cost	$2.11
Cost of trimmings	1.00
Total stock cost	3.11

Labor cost:

Items.	Suit.
Sponging, examining and cutting	$0.03
Making (contract price) coat $0.70, pants $0.30, vest $0.23	1.23
Overhead factory expense	.09
Total	1.35

SUMMARY.

Total stock cost	$3.11
Conversion cost	1.35
Total factory cost	4.46
Selling expense distributed to each garment on basis of ratio of total selling expense to total value of output	.25
General expense distributed to each garment on basis of ratio of total general expense to total value of output	.25
Final cost (factory cost plus selling and general expense)	4.96

Cloth making.

Stock	$0.425
Spooling, doubling, and twisting	.016
Weaving	.068
Burling, mending, and specking	.025
Finishing	.016
General expense	.051
Net manufacturing cost	.601
Selling price	.65

D.—Three-Piece Suit.

Wholesale price (net), $9.35.
Retail price, $15 and up.
Cloth: Fancy cassimere.

Clothing manufacture.

Stock cost:
Trimmings, cotton linings.
Number of yards of cloth used in suit, 3½.

Cost of cloth used in suit, per yard, $0.83; total cost	$2.91
Cost of trimmings	1.19
Total stock cost	4.10

Labor cost:

Sponging	.04
Cutting, and trimming	.45
Making coat, $0.85; pants, $0.40; vest, $0.31	1.56
Examining finished suit	.03
Overhead factory expense	.44
Total manufacturing cost	2.52

SUMMARY.

Net stock cost	$4.10
Manufacturing cost	2.52
Total factory cost	6.62
Selling expense distributed to each garment on basis of ratio of total selling expense to total value of output	1.18
General expense distributed to each garment on basis of ratio of total general expense to total value of output	.45
Final cost, including selling and general expense	8.25

Cloth making.

Cost per yard:	
Stock	$0.550
Expense to weaving	.017
Weaving	.054
Burling, mending, and finishing	.030
General expense	.070
Net manufacturing cost	.721
Selling price	.83

E.—Three-Piece Suit.

Regular wholesale price, $24.
Net wholesale price (amount realized after deducting average discount), $22.27.
Retail price, $35 and up.
Cloth: Fancy woolen.

Clothing manufacture.

Stock cost:
Trimmings,, serge body linings.
Number of yards of cloth used in suit, 3⅝.

Cost of cloth used, per yard $2.44, total	$8.84
Cost of trimmings	3.75
Freight	.04
Total stock cost	12.63

Labor cost:	
Sponging and examining	.037
Cutting	.393
Trimming	.067
Making coat, $2.45; pants, $0.76; vest, $0.57	3.780
Total productive labor	4.277

SUMMARY.

Net stock cost	$12.63
Labor cost	4.28
Factory expense distributed to each garment on basis of productive labor in each garment	.44
Total factory cost	17.35
Selling expense distributed to each garment on basis of ratio of total selling expense to total value of output	2.47
General expense distributed to each garment on basis of ratio of total general expense to total value of output	.79
Final cost (factory cost plus selling and general expense)	20.61

Cloth making.

Cost per yard:	
Stock	$1.642
Expense to weaving	.054
Weaving	.149
Weaving to finished cloth	.228
General expense	.19
Total manufacturing cost	2.263
Credit waste	.004
Net manufacturing cost	2.259
Selling price	2.44

F.—SINGLE-BREASTED OVERCOAT.

Regular wholesale price, $13.50.
Net wholesale price (average realized after deducting average discount), $12.55.
Retail price, $20 and up.
Cloth: Piece-dyed fancy worsted.

Clothing manufacture.

Stock cost:
Trimmings, mohair lining, satin sleeve lining, linen canvas.
Number of yards of cloth used in coat, 2½.

Cost of cloth, per yard $1.06, total	$2.65
Cost of trimmings	3.60
Freight	.04
Less credit waste	.03
Total stock cost	6.26

Labor cost:	
Sponging and examining	.020
Cutting	.300
Trimming	.080
Fitting	.100
Operating	.566
Basting	.681
Finishing	.784
Button sewing	.040
Buttonholes	.160
Pressing	.596
Busheling	.060
Examining finished product	.020
Factory expense	.760
Total	4.167

SUMMARY.

Net stock cost	$6.260
Conversion cost	4.170
Selling expense distributed on basis of ratio of total selling expense to total value of output	.608
General expense distributed on basis of ratio of total general expense to total value of output	.376
Final cost (factory cost plus selling and general expense)	11.414

Cloth making.

Cost per yard:	
Stock	$0.700
Expense to weaving	.016
Weaving	.078
Burling and mending	.038
Dyeing and finishing	.080
General expense	.090
Total manufacturing expense	1.002
Less credit waste	.001
Net manufacturing cost	1.001
Selling price	1.06

WOMEN'S CLOTHING.

The women's clothing industry in general presents the same characteristics as that of the men's. There is the same feature of urban concentration and in even a higher degree. According to the census of 1910, New York City alone produced $266,500,000 out of a total of $385,000,000, the proportion of that city being over two-thirds of the entire industry. In view of this situation it was deemed sufficient to restrict the present investigation to that center.

The following table shows the geographical distribution of this industry in 1905 and in 1910:

TABLE 18.—*Concentration of women's clothing industry, 1905 and 1910.*

Locality.	1905		1910	
	Value of product.	Per cent of total output.	Value of product.	Per cent of total output.
United States	$247,661,560	100.0	$384,751,649	100.0
New York	168,418,895	68.0	266,477,381	69.0
Philadelphia	12,871,357	5.2	30,132,842	7.9
Chicago	11,636,818	4.8	15,676,925	4.3
Cleveland	7,427,553	3.0	12,788,775	3.3

Under the term "women's clothing" there are embraced a much larger variety of products of the needle trades than under the term "men's clothing." For purposes of this investigation attention was given only to establishments engaged in the production of skirts, suits, and coats. Even here the industry does not present the same simplicity as men's clothing. The latter is made for the most part from woolen materials. There is, however, a great variety and range of material used in the cloak and suit industry, and changing style and fashion play an important part in the material used. A statement of the relative importance of woolens for the industry in one year, or for one season, is, therefore, not necessarily descriptive of the general situation.

In women's clothing, as in men's, there is the inherent difficulty of finding any standard product on which cost of production can be uniformly obtained. For the purpose of this investigation data were secured for the costs of production on coats, skirts, and suits. In general the same methods were pursued here as in the men's industry. Data were obtained for specimen garments and supplemented by statements for the year's business. Here, however, statements for this year's business are not as informing as in the men's clothing industry. As practically all men's outer street garments are made of wool, a statement of the cost of woolens for the year gave the proportionate wool cost in the average garment produced. In this industry, however, few houses make exclusively woolen garments. An analysis of the materials used and their costs does not, therefore, necessarily give the average cost of materials per garment. Such data must here be taken from the figures for specimen garments, and accordingly more stress was laid on this information.

Here, as in the men's clothing industry, the contract system plays a large part, though not so large as in the latter. For this reason it is equally difficult to obtain what might be called direct labor costs.

The essential information secured in this investigation is summarized in two series of tables. The first series shows for skirts, coats, and suits, the (1) cloth cost, the (2) cost of trimmings, the (3) manufacturing cost. On the basis of the year's figures there is shown also the selling price and general expense. In the last item overhead factory expense is calculated on the basis of the yearly data and does not represent direct statement of the manufacturer.

The second general series of tables show for the year the material cost, the manufacturing costs—direct labor and overhead factory expense—selling expense, general expense, and profit. The term "profit" is here used again in the special sense given to it in the men's clothing investigation. It is the figure arrived at by deducting the items of cost just specified. It does not represent net profits, for from it must be deducted officers' salaries or compensation for services of members of firms, interest on the capital invested or money borrowed, and losses through bad debts or otherwise. The yearly figures are for 1909 with very few exceptions. The data for 1909 were taken because they were deemed to be representative of normal conditions. The figures for 1910 would have been unsatisfactory owing to the disturbing influence of the strike. Inasmuch as the yearly figures do not show the total cost of woolens used, the chief value of this table is in the view it presents of the general conditions of the industry, the importance of the material cost, of conversion cost, labor and general factory expense, selling cost, and general expenses.

In the present investigation data were secured from 17 establishments, and of these, 14 furnishing detailed information had an output of $12,000,000 net sales. This represents approximately 5 per cent of the total output of women's clothing as reported by the census for New York City. The proportion for establishments engaged in the manufacture of cloaks, suits, and skirts is considerably higher.

DATA FOR SPECIMEN GARMENTS.

The data for specimen garments were obtained for the year 1911, for fall and winter styles. It will be convenient to consider here separately skirts, cloaks, and suits.

SKIRTS.

In skirts the cloth is practically the only material of importance. Here data were obtained for skirts ranging in wholesale prices from $2.50 net to about $7. These data show that in all grades the cloth cost is 40 per cent. The cost of other materials is about 5 per cent. The total material cost is substantially 45 per cent. The manufacturing expense for direct labor and overhead expense is about 30 per cent.

Below are shown the selling price for typical skirts, gross and net, and the details of cost for material, labor, factory expense, selling expense, general expense, and profits.

TABLE 19.—*Analysis of costs of typical skirts, selling price, and details of costs, arranged in order of net selling price.*

Reference No.	Wholesale selling price.		Cloth cost per yard, net.	Yards per skirt.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured skirt.
	Gross.	Net.								
1....	$2.62	$2.53	$0.515	$2.00	$1.03	$0.15	$1.18	$0.65	$0.18	$2.01
2....	3.50	3.39	.575	2.50	1.44	.17	1.61	1.06	.27	2.94
3....	4.00	3.86	.715	2.00	1.43	.25	1.68	1.00	.27	2.95
4....	4.50	4.36	.75	2.375	1.78	.20	1.98	1.11	.28	3.37
5....	5.00	4.83	.75	2.50	1.88	.25	2.13	1.15	.31	3.59
6....	5.00	4.85	.75	2.75	2.06	.15	2.21	1.12	.29	3.62
7....	7.00	6.86	1.15	2.50	2.88	.50	3.38	1.70	.46	5.54

[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.
[2] At the rates shown for the year 1909.

The following table repeats the chief items of cost in readily comparable form and showing such items as percentages of the net selling price:

TABLE 20.—*Analysis of costs of typical skirts for different grades of clothing.*

[Details of cost expressed as percentages of net selling price.]

Reference No.	Net wholesale selling price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured skirt.
1......	100.00	40.71	5.93	46.64	25.69	7.11	79.44
2......	100.00	42.48	5.01	47.49	31.27	7.97	86.73
3......	100.00	37.04	6.48	43.52	25.91	6.99	76.42
4......	100.00	40.82	4.59	45.41	25.46	6.42	77.29
5......	100.00	38.92	5.18	44.10	23.81	6.42	74.33
6......	100.00	42.48	3.09	45.57	23.09	5.99	74.65
7......	100.00	41.98	7.29	49.27	24.78	6.71	80.76

[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.
[2] At the rates shown for the year 1909.

COATS OR CLOAKS.

On coats the cost of cloth is less important than it is on skirts; on the other hand, the cost of trimming is very much more important, and the conversion cost absorbs a larger percentage of the selling price of the garment. For coats selling at wholesale for less than $12, the cloth cost is equal to about 35 per cent of the net selling price. In garments selling above this figure and as high as $30, the cloth cost seems to be in general less than 30 per cent and on very expensive coats the cloth cost falls below 20 per cent. The cost of trimming shows much greater variation than the cost of cloth, rising, however, both absolutely and relatively, with the cost of the garment. The extensive vogue of the reversible coat this year probably tends to exaggerate the importance of the cloth cost for coats. It is sufficient to note that cloth is far more important an item of cost on cheap garments than on more expensive coats. The conversion cost on cheap coats is nearly as great as the cloth cost, and on more expensive garments it is greater than the entire cost of the materials used.

Below are shown the details of selling price and cost for typical coats:

TABLE 21.—*Analysis of costs of typical coats, selling price, and details of costs, arranged in order of net selling price.*

Reference No.	Wholesale selling price.		Cloth cost per yard net.	Yards per coat.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured coat.
	Gross.	Net.								
1...	$5.50	$5.30	$0.65	3.25	$2.11	$1.00	$3.11	$1.79	$0.13	$5.03
2...	7.00	6.74	.74	3.25	2.41	1.70	4.11	1.94	.14	6.19
3...	8.00	7.70	.88	3.25	2.86	2.31	5.17	2.14	.16	7.47
4...	10.75	9.97	.75	4.50	3.38	.95	4.33	3.25	.41	7.99
5...	12.00	11.13	.90	4.25	3.83	.85	4.68	3.50	.44	8.62
6...	12.50	12.04	1.12	3.25	3.64	3.64	7.28	2.69	.20	10.17
7...	13.75	13.48	1.10	3.625	3.99	2.22	6.21	3.51	1.00	10.72
8...	15.00	13.92	.95	4.00	3.80	2.70	6.50	4.00	.50	11.00
9...	14.50	13.96	1.12	3.50	3.92	2.70	6.62	2.79	.21	9.62
10...	16.50	15.18	1.3725	3.50	4.80	.67	5.47	4.42	.82	10.71
11...	17.50	16.24	1.075	4.25	4.57	3.00	7.57	4.50	.56	12.63
12...	18.50	17.02	.90	3.75	3.38	4.37	7.75	4.83	.89	13.47
13...	20.00	18.56	2.25	4.25	9.56	2.80	12.36	3.50	.44	16.30
14...	22.50	21.09	.80	4.50	3.60	3.33	6.93	8.84	3.11	18.88
15...	23.50	21.81	1.75	4.25	7.44	3.70	11.14	5.37	.67	17.18
16...	23.50	21.95	1.50	4.00	6.00	3.65	9.65	6.08	1.68	17.41
17...	30.00	27.84	1.50	4.00	6.00	7.30	13.30	7.00	.88	21.18
18...	35.00	32.81	1.55	4.00	6.20	7.13	13.33	8.58	3.02	24.93
19...	35.00	32.81	2.24	3.50	7.84	5.42	13.26	10.07	3.54	26.87
20...	42.50	39.84	1.36	3.75	5.10	6.48	11.58	15.58	5.48	32.64

[1] This entry represents direct labor where the manufacturer has his own shops, otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.
[2] At the rates shown for the year 1909.

The following table repeats the important items of cost in terms of percentages of the net selling price:

TABLE 22.—*Analysis of costs of typical coats for different grades of clothing.*

[Details of cost expressed as percentages of net selling price.]

Reference No.	Net wholesale selling price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured coat.
1.....	100.00	39.81	18.87	58.68	33.77	2.45	94.90
2.....	100.00	35.76	25.22	60.98	28.78	2.08	91.84
3.....	100.00	37.14	30.00	67.14	27.79	2.08	97.01
4.....	100.00	33.90	9.53	43.43	32.60	4.11	80.14
5.....	100.00	34.41	7.64	42.05	31.45	3.95	77.45
6.....	100.00	30.23	30.23	60.46	22.34	1.66	84.46
7.....	100.00	29.60	16.47	46.07	26.04	7.42	79.53
8.....	100.00	27.30	19.40	46.70	28.73	3.59	79.02
9.....	100.00	28.08	19.34	47.42	19.99	1.50	68.91
10.....	100.00	31.62	4.41	36.03	29.12	5.40	70.55
11.....	100.00	28.14	18.47	46.61	27.71	3.45	77.77
12.....	100.00	19.86	25.67	45.53	28.38	5.23	79.14
13.....	100.00	51.51	15.08	66.59	18.86	2.37	87.82
14.....	100.00	17.07	15.79	32.86	41.92	14.75	89.52
15.....	100.00	34.11	16.97	51.08	24.62	3.07	78.77
16.....	100.00	27.33	16.63	43.96	27.70	7.65	79.32
17.....	100.00	21.55	26.22	47.77	25.14	3.16	76.08
18.....	100.00	18.90	21.73	40.63	26.15	9.20	75.98
19.....	100.00	23.90	16.52	40.42	30.69	10.79	81.90
20.....	100.00	12.80	16.27	29.07	39.10	13.76	81.93

[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.
[2] At the rates shown for the year 1909.

Below is a brief summary of the above details:

TABLE 23a.—*Analysis of costs of typical coats for different grades of clothing, average selling price and costs—Summary.*

Range of net wholesale selling price.	Net wholesale selling price.	Estimated retail price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured coat.
Under $12	$8.17	$14.00	$2.92	$1.36	$4.28	$2.52	$0.26	$7.06
$12 to $29.99	17.76	31.00	5.06	3.34	8.40	4.79	.91	14.10
Over $30	35.15	50.00	6.38	6.34	12.72	11.41	4.01	28.14

[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.
[2] At the rates shown for the year 1909.

TABLE 23b.—*Analysis of costs of typical coats for different grades of clothing—Summary—Average selling price and costs.*

[Details of costs expressed as percentages of net selling price.]

Range of net wholesale selling price.	Net wholesale selling price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured coat.
Under $12	100.00	35.74	16.65	52.39	30.84	3.18	86.41
$12 to $29.99	100.00	28.49	18.81	47.30	26.97	5.12	79.39
Over $30	100.00	18.15	18.04	36.19	32.46	11.41	80.06

[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.
[2] At the rates shown for the year 1909.

SUITS.

On suits the cloth cost is far less important than for either skirts or coats. Trimmings are here very important, and on the more expensive garments often account for the larger part of the material cost. The trimmings used are, moreover, chiefly silk for the lining and braid or embroidery. The conversion cost, or wages of labor and factory expense, is here the most important element in the cost of the garment.

On the whole it appears that the cloth cost is most important in the cheaper priced garments. Thus in garments selling at wholesale for less than $20 the cloth is about 25 per cent. On the more expensive garments the cloth cost is generally below 20 per cent. While the cloth cost is not as important as on coats, it is still the chief material used. The labor cost, or more correctly the factory cost, ranges between 35 and 45 per cent, being more important than the cost of all materials used. The higher labor cost is found in the more expensive garment.

Below are shown the details for selling price and costs for typical suits:

TABLE 24.—*Analysis of costs of typical suits, selling price, and details of costs, arranged in order of net selling price.*

Reference No.	Wholesale selling price.		Cloth cost per yard, net.	Yards per suit.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured suits.
	Gross.	Net.								
1.....	$8.78	$8.58	$1.10	3.25	$3.58	$0.42	$4.00	$2.14	$0.61	$6.75
2.....	15.50	15.20	1.10	3.625	3.99	2.36	6.35	4.81	1.23	11.89
3.....	16.50	15.84	.93	4.00	3.72	1.68	5.40	6.10	.82	12.32
4.....	20.00	18.40	.92	4.25	3.92	3.12	7.04	5.40	1.00	13.44
5.....	20.00	18.68	1.00	4.50	4.50	3.30	7.80	5.85	1.61	15.26
6.....	20.00	19.20	1.06	4.50	4.73	1.68	6.41	7.46	1.01	14.88
7.....	22.50	20.92	.85	4.25	3.61	3.40	7.01	8.80	.58	16.39
8.....	25.00	23.25	.85	3.75	3.19	4.10	7.29	8.80	.58	16.67
9.....	26.50	24.38	1.15	4.625	5.32	3.60	8.92	6.94	1.28	17.14
10....	27.50	25.30	1.02	4.50	4.59	5.62	10.21	7.59	1.41	19.21
11....	27.50	25.30	1.10	4.75	5.23	2.25	7.48	9.85	3.26	20.59
12....	30.00	27.75	.98	4.25	4.17	3.13	7.30	10.10	3.18	20.58
13....	30.00	27.90	1.15	4.375	5.03	4.94	9.97	9.50	.63	20.10
14....	30.00	28.02	1.40	5.00	7.00	4.30	11.30	8.87	2.44	22.61
15....	35.00	32.37	.98	4.33	4.24	6.33	10.57	11.35	3.68	25.60
16....	42.50	39.31	1.62	4.625	7.49	6.14	13.63	13.60	4.28	31.51
17....	50.00	46.25	1.61	4.25	6.84	4.98	11.82	15.10	4.76	31.68

[1] This entry represents direct labor where the manufacturer has his own shops, otherwise it stands for direct labor in the cutting room plus the amount paid to contractors for making up the garments.

[2] At the rate shown for the year 1909.

The following table gives the important items of cost in the form of percentages of the net selling price:

TABLE 25.—*Analysis of costs of typical suits for different grades of clothing.*

[Details of cost expressed as percentages of net selling price.]

Reference No.	Net wholesale selling price.	Total cloth, cost.	Trimmings, cost.	Total material, cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured suit.
1......	100.00	41.72	4.90	46.62	24.94	7.11	78.67
2......	100.00	26.25	15.53	41.78	28.36	8.09	78.22
3......	100.00	23.48	10.61	34.09	38.51	5.18	77.78
4......	100.00	21.30	16.96	38.26	29.35	5.43	73.04
5......	100.00	24.09	17.67	41.76	31.32	8.62	81.70
6......	100.00	24.64	8.75	33.39	38.85	5.26	77.50
7......	100.00	17.26	16.25	33.51	42.07	2.77	78.35
8......	100.00	13.72	17.63	31.35	37.85	2.49	71.69
9......	100.00	21.82	14.77	36.59	28.47	5.25	70.30
10.....	100.00	18.14	22.21	40.36	30.00	5.57	75.93
11.....	100.00	20.67	8.89	29.57	38.93	12.89	81.39
12.....	100.00	15.03	11.28	26.31	36.40	11.46	74.17
13.....	100.00	18.03	17.71	35.74	34.05	2.26	72.05
14.....	100.00	24.98	15.35	40.33	31.66	8.71	80.70
15.....	100.00	13.10	19.56	32.65	35.06	11.37	79.08
16.....	100.00	19.05	15.62	34.67	34.60	10.89	80.16
17.....	100.00	14.79	10.77	25.56	32.65	10.29	68.50

[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.

[2] At the rates shown for the year 1909.

A brief summary of the above details may be had in the following table:

TABLE 26a.—*Analysis of costs of typical suits for different grades of clothing—Average selling price and costs—Summary.*

Range of net wholesale selling price.	Net wholesale selling price.	Estimated retail price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured suit.
Under $20	$15.98	$27.00	$4.07	$2.09	$6.16	$5.21	$1.04	$12.41
$20 to $29.99	25.35	45.00	4.77	3.92	8.69	8.81	1.67	19.17
Over $30	39.31	68.00	6.19	5.82	12.01	13.35	4.24	29.60

[1] This entry represents direct labor where the manufacturer has his own shops, otherwise it stands for direct labor in the cutting room plus the amount paid to contractors for making up the garments.
[2] At the rates shown for the year 1909.

TABLE 26b.—*Analysis of costs of typical suits for different grades of clothing—Summary—Average selling price and costs.*

[Details of cost expressed as percentages of net selling price.]

Range of net wholesale selling price.	Net wholesale selling price.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured suit.
Under $20	100.00	24.57	13.08	38.55	32.60	6.51	77.66
$20 to $29.99	100.00	18.82	15.46	34.28	34.75	6.59	75.62
Over $30	100.00	15.75	14.81	30.55	33.96	10.79	75.30

[1] This entry represents direct labor where the manufacturer has his own shops, otherwise it stands for direct labor in the cutting room plus the amount paid to contractors for making up the garments.
[2] At the rates shown for the year 1909.

The foregoing table indicates the importance of the total cloth cost in garments. Below are shown the price of the cloths used. An examination of these tables indicates a considerable variation in yardage, due largely to style. It indicates further that the same priced cloths, or cloths bought at approximately the same price, enter into garments differing very considerably in price. On the other hand it is clear that in general the price of the cloth rises with the price of the garment. However, the increase in cloth cost is not proportional to the increased price, the chief difference in cost between different priced garments being in trimmings and even more in the making.

TABLE 27.—*Relation of cloth cost to total cost of women's clothing, details for all specimen garments, cost of cloth per yard, yardage, net selling price of garment, and details of cost, arranged according to cloth cost per yard.*

SKIRTS.

Reference No.	Cloth cost per yard, net.	Yards per garment.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.[1]	Manufacturing expense.[2]	Cost of manufactured garment.	Wholesale selling.	
									Gross.	Net.
1	$0.515	2.00	$1.03	$0.15	$1.18	$0.65	$0.18	$2.01	$2.62	$2.53
2	.575	2.50	1.44	.17	1.61	1.06	.27	2.94	3.50	3.39
3	.715	2.00	1.43	.25	1.68	1.00	.27	2.95	4.00	3.86
4	.75	2.375	1.78	.20	1.98	1.11	28	3.37	4.50	4.36
5	.75	2.50	1.88	.25	2.13	1.15	.31	3.59	5.00	4.83
6	.75	2.75	2.06	.15	2.21	1.12	.29	3.62	5.00	4.85
7	1.15	2.50	2.88	.50	3.38	1.70	.46	5.54	7.00	6.86

[1] This entry represents direct labor where the manufacturer has his own shops; otherwise it stands for the direct labor in the cutting room plus the amount paid to contractors for making up the garments.
[2] At the rates shown for the year 1909.

TABLE 27.—*Relation of cloth cost to total cost of women's clothing, details for all specimen garments, cost of cloth per yard, yardage, net selling price of garment, and details of cost, arranged according to cloth cost per yard*—Continued.

COATS.

Reference No.	Cloth cost per yard, net.	Yards per garment.	Total cloth cost.	Trimmings cost.	Total material cost.	Direct labor cost.	Manufacturing expenses.	Cost of manufactured garment.	Wholesale selling.	
									Gross.	Net.
1....	$0.65	3.25	$2.11	$1.00	$3.11	$1.79	$0.13	$5.03	$5.50	$5.30
2....	.74	3.25	2.41	1.70	4.11	1.94	.14	6.19	7.00	6.74
4....	.75	4.50	3.38	.95	4.33	3.25	.41	7.99	10.75	9.97
14...	.80	4.50	3.60	3.33	6.93	8.84	3.11	18.88	22.50	21.09
3....	.88	3.25	2.86	2.31	5.17	2.14	.16	7.47	8.00	7.70
12...	.90	3.75	3.38	4.37	7.75	4.83	.89	13.47	18.50	17.02
5....	.90	4.25	3.83	.85	4.68	3.50	.44	8.62	12.00	11.13
8....	.95	4.00	3.80	2.70	6.50	4.00	.50	11.00	15.00	13.92
11...	1.075	4.25	4.57	3.00	7.57	4.50	.56	12.63	17.50	16.24
7....	1.10	3.625	3.99	2.22	6.21	3.51	1.00	10.72	13.75	13.48
6....	1.12	3.25	3.64	3.64	7.28	2.69	.20	10.17	12.50	12.04
9....	1.12	3.50	3.92	2.70	6.62	2.79	.21	9.62	14.50	13.96
20...	1.36	3.75	5.10	6.48	11.58	15.58	5.48	32.64	42.50	39.84
10...	1.3725	3.50	4.80	.67	5.47	4.42	.82	10.71	16.50	15.18
16...	1.50	4.00	6.00	3.65	9.65	6.08	1.68	17.41	23.50	21.95
17...	1.50	4.00	6.00	7.30	13.30	7.00	.88	21.18	30.00	27.84
18...	1.55	4.00	6.20	7.13	13.33	8.58	3.02	24.93	35.00	32.81
15...	1.75	4.25	7.44	3.70	11.14	5.37	.67	17.18	23.50	21.81
19...	2.24	3.50	7.84	5.42	13.26	10.07	3.54	26.87	35.00	32.81
13...	2.25	4.25	9.56	2.80	12.36	3.50	.44	16.30	20.00	18.56
SUITS.										
8....	$0.85	3.75	$3.19	$4.10	$7.29	$8.80	$0.58	$16.67	$25.00	$23.25
7....	.85	4.25	3.61	3.40	7.01	8.80	.58	16.39	22.50	20.92
4....	.92	4.25	3.92	3.12	7.04	5.40	1.00	13.44	20.00	18.40
3....	.93	4.00	3.72	1.68	5.40	6.10	.82	12.32	16.50	15.84
12...	.98	4.25	4.17	3.13	7.30	10.10	3.18	20.58	30.00	27.75
15...	.98	4.33	4.24	6.33	10.57	11.35	3.68	25.60	35.00	32.37
5....	1.00	4.50	4.50	3.30	7.80	5.85	1.61	15.26	20.00	18.68
10...	1.02	4.50	4.59	5.62	10.21	7.59	1.41	19.21	27.50	25.30
6....	1.05	4.50	4.73	1.68	6.41	7.46	1.01	14.88	20.00	19.20
1....	1.10	3.25	3.58	.42	4.00	2.14	.61	6.75	8.78	8.58
2....	1.10	3.625	3.99	2.36	6.35	4.31	1.23	11.89	15.50	15.20
11...	1.10	4.75	5.23	2.25	7.48	9.85	3.26	20.59	27.50	25.30
13...	1.15	4.375	5.03	4.94	9.97	9.50	.63	20.10	30.00	27.90
9....	1.15	4.625	5.32	3.60	8.92	6.94	1.28	17.14	26.50	24.38
14...	1.40	5.00	7.00	4.30	11.30	8.87	2.44	22.61	30.00	28.02
17...	1.61	4.25	6.84	4.98	11.82	15.10	4.76	31.68	50.00	46.25
16...	1.62	4.625	7.49	6.14	13.63	13.60	4.28	31.51	42.50	39.31

From the data presented above it is clear that in the manufacture of women's woolen garments cloth is the most important material used. It is also clear that the cost of cloth is relatively a larger item in the total cost of the garment in cheaper priced suits and coats than in the more expensive wearing apparel.

Attention is called to the high per cent which the cost of labor and the other factory expense form as compared with the net selling price. This applies more particularly to the more expensive coats and suits, where the conversion cost exceeds the entire cost of all materials used.

The information as taken from the books of the manufacturer for the year 1909 can not be compared in detail with the data for specimen garments just presented. The latter were secured in the fall of 1911, or two years later, and, moreover, applied to a single season. Furthermore, the information is for woolen garments exclusively. The figures for 1909 cover an entire year. Changes in the style must be reckoned with, and also the fact that the 1909 figures are for all garments manufactured, woolen and other. The 1909 figures are valuable as depicting conditions of the industry in a year which is regarded in the trade as representative of normal conditions.

The information furnished by the manufacturer for the year 1909 has been summarized so as to show material cost, direct labor, factory expense, selling expense, and general expense. The table is designed to show separately the information for skirt houses and for houses engaged in the manufacture of cloaks and suits. For cloak and suit establishments a division is made of high-grade establishments producing garments averaging in selling price $20 and over and establishments making cheaper garments.

Below are given the data for the year 1909:

TABLE 28.—*Cost of manufacturing clothing—Women's clothing, 1909.*

Items.	Skirts.	Coats and suits.		Grand total.
		Cheap and medium (under $20).	High grade ($20 and over).	
Net selling price	$1,983,738	$2,780,519	$7,209,589	$11,973,846
Material cost	1,074,710	1,693,746	3,593,058	6,361,514
Direct labor[1]	452,689	584,224	(2)	....
Factory expense	143,801	79,834	(2)	....
Total manufacturing cost	596,490	664,058	2,179,363	3,439,911
Cost of garments sold	1,662,989	2,349,740	5,792,608	9,806,337
Selling expense	115,099	81,992	131,446	328,537
General expense	67,463	67,793	417,038	552,294
Total selling and general expense	182,562	149,785	548,484	880,831
Total cost	1,845,551	2,499,525	6,341,092	10,686,168
Profits	138,187	280,994	868,497	1,287,678

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[1] This entry represents direct labor where the manufacturer has his own shops, otherwise it stands for direct labor in the cutting room plus the amount paid to contractors for making up the garment.
[2] Not shown separately for all establishments.

The information in the table above is reduced to comparable terms by expressing the items of cost as percentages of the net selling price.

TABLE 29.—*Cost of manufacturing clothing—Women's clothing, 1909.*

[Items of cost expressed as percentages of net selling price.]

Items.	Skirts.	Coats and suits.		Grand total.
		Cheap and medium (under $20).	High grade ($20 and over).	
Net selling price	100.00	100.00	100.00	100.00
Material cost	53.91	60.70	50.02	53.14
Direct labor[1]	22.71	20.94	(2)	....
Factory expense	7.20	2.86	(2)	....
Total manufacturing cost	29.92	23.80	30.32	28.73
Cost of garments sold	83.83	84.50	80.34	81.88
Selling expense	5.80	2.95	1.82	2.74
General expense	3.40	2.43	5.78	4.61
Total selling and general expense	9.20	5.38	7.60	7.35
Total cost	93.03	89.89	87.95	89.23
Profits	6.97	10.10	12.05	10.76

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[1] This entry represents direct labor where the manufacturer has his own shops, otherwise it stands for direct labor in the cutting room plus the amount paid to contractors for making up the garments.
[2] Not shown separately for all establishments.

In the following table the factory cost of women's garments (the expenditures for the material and factory expense) is taken as 100 per cent and the constituent items of cost shown as percentages of this base:

TABLE 30.—*Cost of manufacturing women's clothing, 1909—Factory costs.*

[Items of cost expressed as percentages of total factory cost.]

Items.	Skirts, total.	Coats and suits.		Grand total.
		Cheap and medium (under $20).	High grade ($20 and over).	
Total cost, manufactured garments	$100.00	$100.00	$100.00	$100.00
Material cost	64.30	71.83	62.24	64.90
Direct labor	27.08	24.77	....	....
Factory expense	8.60	3.38	....	....
Total manufacturing cost	35.69	28.16	37.75	35.10

SKIRTS.

For skirt houses there is information showing the importance of woolen cloth in the total product. Houses for which there is data available report a cloth cost equivalent to between 44 and 48 per cent of the selling price. The trimming cost, as reported by them, varies from approximately 10 per cent to less than 5 per cent. The labor and factory cost amounts to 30 per cent of the selling price.

CLOAKS AND SUITS.

Here few houses have records showing the importance of woolen cloth in their annual output. One very large concern, which keeps careful records, reports the cost of cloth to be approximately 20 per cent. Other material used by this firm amounts to 25 per cent, or 5 per cent more than the cloth. This is a concern engaged in the production of garments selling at wholesale for more than $25 on the average.

One house extensively engaged in the production of coats, selling on the average between $5 and $6, reports that normally about seven-eighths of the total material costs is expended for cloth. This is an estimate, the concern keeping no records that segregate the cloth from the trimmings. Another house, manufacturing misses' and ladies' coats and suits, reports that cloth absorbs 58 per cent of the net selling price as against 8 per cent for trimmings. A third house gives the cloth cost as 36 per cent and the cost of trimmings as 9 per cent.

The total material cost varies from 45 per cent to 63 per cent. The average is 60 per cent for houses making the more popular-priced suits and coats and 50 per cent for more expensive garments. The high percentages are reported by houses whose output sells at popular prices.

The factory cost on suits and coats as reported by the establishments investigated varies widely. In the popular-priced garments a factory cost equal to 22 per cent of the net selling price is reported. In higher-priced garments the factory cost rises to 30 per cent.

Where a careful analysis of the figures are available the overhead expense in the factory for sample making, designing, and supervision is very high, absorbing in some establishments as much as 10 per cent of the net selling price.

In the cloak and suit business the large houses report the cost of the garments as they leave the factory to be between about 80 and 85 per cent. This means a lower margin for selling, general expenses, and profits than that found in men's clothing. One interesting phase of the industry, however, is the comparatively low-selling expense in the suit and coat business. The large houses in the business report a selling expense of less than 3½ per cent at the maximum. This is because sales are made largely at the office of the firm rather than through salesmen. As selling expense absorbs a very much lower proportion of the net amount received from sales, the larger houses show a higher rate of profit than that reported as a whole for the men's clothing industry.

It is necessary to emphasize the fact that these conclusions are based largely on data received from houses manufacturing higher grade women's garments. The more limited data secured for skirt houses indicate a different situation and selling expenses are there considerably higher.

In comparison with the data obtained for men's clothing the information secured in regard to women's clothing is limited. The latter investigation took place at a time when the industry was at the height of its season, and it was therefore difficult to secure data on large and detailed scale. Moreover, there was not the same cooperation on the part of the manufacturers which was met with in men's clothing. The conclusions from the figures obtained are given, therefore, not as necessarily final, but as showing the trend and a very good indication of the situation of the industry as a whole.

COMPLETE COST OF TYPICAL WOMEN'S GARMENTS.

There is now presented certain typical women's clothing, followed through the different processes both of clothing manufacture and the manufacture of the cloth of which the garments are made.

It is not deemed necessary to go into detail of the making of yarn, as this would be exactly similar to the two cases given under the head of men's clothing, where the processes were extended to yarn manufacture.

This line includes women's two-piece suits of two different grades, one misses' suit, three standard cloaks and two typical skirts. In each case the lowest retail price has been taken as about 50 per cent of the wholesale price, which is conservative for this trade. The different garments are as follows:

(*m*) Women's two-piece suit:	
Regular wholesale price	$16.50
Net wholesale price (average realized)	15.84
Retail price	25.00
(*n*) Women's two-piece suit:	
Regular wholesale price	20.00
Net wholesale price (average realized)	18.68
Retail price	30.00
(*o*) Misses' suit:	
Regular wholesale price	15.50
Net wholesale price (average realized)	15.20
Retail price	24.00

(*p*) Cloak:	
Regular wholesale price	$7.00
Net wholesale price (average realized)	6.74
Retail price	10.50
(*r*) Cloak:	
Regular wholesale price	18.50
Net wholesale price (average realized)	17.02
Retail price	28.00
(*s*) Cloak:	
Regular wholesale price	30.00
Net wholesale price (average realized)	27.84
Retail price	45.00
(*t*) Skirt:	
Regular wholesale price	2.70
Net wholesale price (average realized)	2.53
Retail price	4.00
(*v*) Skirt:	
Regular wholesale price	5.00
Net wholesale price (average realized)	4.85
Retail price	7.50

(*m*) *Suit.*

[Regular wholesale price, $16.50; net price, amount realized after deducting average discount, $15.84; retail price, $25 and up; cloth, woolen.]

SUIT MAKING.

Stock cost:		
Cloth, woolen.		
Lining, cotton back satin.		
Number of yards of cloth used in suit, 4½.		
Cost of cloth per yard, $0.825; total	$3.69	
Cost of trimmings	1.68	
Total cost of stock		$5.37
Labor cost:		
Sponging	.10	
Cutting	.50	
Operating	3.50	
Pressing	1.00	
Miscellaneous	1.00	
Total labor cost	6.10	
Factory expense[1]	.82	
Total manufacturing expense		6.92
Selling expense[2]		.49
General expense[2]		.43
Final cost (factory cost plus selling and general expense)		13.21

CLOTH MAKING.

	Cost per yard.
Stock	$0.487
Productive labor	.161
Nonproductive labor	.007
Department materials	.009
General expense	.107
Total manufacturing cost	.771
Credit waste	.004
Net manufacturing cost	.767
Mill selling price	.825

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[1] Distributed to each garment on basis of productive labor in each garment.

[2] Distributed to each garment on basis of ratio of total selling and general expense to total value of output.

(*n*) *Suit.*

[Regular wholesale price, $20; net price, amount realized after deducting average discount, $18.68; retail price, $30 and up; cloth, worsted serge.]

SUIT MAKING.

Stock cost:		
Cloth, worsted serge.		
Lining, cotton back satin.		
Number of yards of cloth used in suit, 4½.		
Cost of cloth per yard, $0.98; total	$4.41	
Cost of linings	2.50	
Interlining and trimming	.80	
Total stock cost		$7.71
Labor cost:		
Sponging	.10	
Cutting	.75	
Making	5.00	
Total labor	5.85	
Factory expense[1]	1.61	
Total manufacturing expense		7.46
Selling expense[2]		1.68
General expense[2]		.37
Final cost (factory cost plus selling and general expense)		17.22

CLOTH MAKING.

	Cost per yard.
Stock	$0.680
Productive labor	.100
Nonproductive labor	.023
Department materials	.040
General expense	.084
Total manufacturing expense	.927
Credit waste	.005
Net manufacturing cost	.922
Mill selling price	.980

(*o*) *Misses' suit.*

[Regular wholesale price, $15.50; net price, amount realized after deducting average discount, $15.20; retail price, $24 and up; cloth, worsted serge.]

SUIT MAKING.

Stock cost:		
Cloth, worsted serge.		
Lining, peau de cygne.		
Number of yards of cloth used in suit, 3⅝.		
Cost of cloth per yard, $1.12; total	$4.06	
Cost of trimmings	1.70	
Interlining and trimming	.66	
Total stock cost		$6.42
Labor cost:		
Sponging	.08	
Cutting	.40	
Making	3.83	
Total labor cost	4.31	
Factory expense[1]	1.23	
Total manufacturing expense		5.54
General expense[2]		.58
Selling expense[2]		1.47
Final cost (factory cost plus selling and general expense)		14.01

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[1] Distributed to each garment on basis of productive labor in each garment.

[2] Distributed to each garment on basis of ratio of total selling and general expense to total value of output.

CLOTH MAKING.

	Cost per yard.
Stock	$0.800
Dressing	.008
Weaving	.042
Burling and mending	.019
Dyeing and finishing	.095
General expense	.071
Total manufacturing expense	1.035
Credit waste	.006
Net manufacturing cost	1.029
Mill selling price	1.12

(p) *Cloak.*

[Regular wholesale price, $7; net price, amount realized after deducting average discount, $6.74; retail price, $10.50 and up; cloth, all-wool broadcloth.]

Stock cost:		
Cloth, all-wool broadcloth.		
Lining, cotton-back satin.		
Number of yards of cloth used in cloak, 3¼.		
Cost of cloth per yard, $0.70; total	$2.28	
Cost of trimmings	1.17	
Interlining and trimming	.53	
Total stock cost		$3.98
Labor cost:		
Sponging	.04	
Cutting	.10	
Making	1.80	
Total labor cost	1.94	
Factory expense [1]	.14	
Total manufacturing expense		2.08
Selling expense [2]		.01
General expense [2]		.13
Final cost (factory cost plus selling and general expense)		6.20

CLOTH MAKING.

	Cost per yard.
Stock	$0.492
Productive labor	.065
Nonproductive labor	.008
Department materials	.018
General expense	.047
Total manufacturing expense	.630
Credit waste	.003
Net manufacturing expense	.627
Mill selling price	.70

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[1] Distributed to each garment on basis of productive labor in each garment.

[2] Distributed to each garment on basis of ratio of total selling and general expense to total value of output.

(r) *Cloak.*

[Regular wholesale price, $18.50; net price, amount realized after deducting average discount, $17.02; retail price, $28 and up; cloth, woolen coating.]

Stock cost:		
Cloth, woolen coating.		
Lining, satin.		
Number of yards of cloth used in cloak, 3¾.		
Cost of cloth, per yard $0.91, total	$3.40	
Cost of lining	3.57	
Interlining and trimming	.80	
Total stock cost		$7.77
Labor cost:		
Sponging	.075	
Cutting	.500	
Making	4.250	
Total labor cost	4.825	
Factory expense [1]	.890	
Total manufacturing expense		5.72
Selling expense [2]		.19
General expense [2]		.97
Final cost (factory cost plus selling and general expense)		14.65

CLOTH MAKING.

	Cost per yard.
Stock	$0.650
Productive labor	.079
Nonproductive labor	.017
Department materials	.019
General expense	.075
Net manufacturing cost	.840
Selling price	.910

(s) *Plain tailored cloak.*

[Regular wholesale price, $30; net price, amount realized after deducting average discount, $27.84; retail price, $45; cloth, clear finished worsted.]

Stock cost:		
Cloth, clear finish worsted.		
Number of yards of cloth used in cloak, 4.		
Cost of cloth, per yard $1.375, total	$5.50	
Cost of lining	2.70	
Interlining and trimming	4.60	
Total stock cost		$12.80
Labor cost:		
Cutting	.50	
Making	6.50	
Total labor cost	7.00	
Factory expense [1]	.88	
Total manufacturing expense		7.88
Selling expense [2]		.81
General expense [2]		.72
Final cost (factory cost plus selling and general expense)		22.21

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[1] Distributed to each garment on basis of productive labor in each garment.

[2] Distributed to each garment on basis of ratio of total selling and general expense to total value of output.

CLOTH MAKING.	Cost per yard.
Stock	$0.92
Expense through weaving	.17
Burling and mending	.02
Finishing	.03
General expense	.08
Net manufacturing cost	1.22
Mill selling price	1.375

(*t*) *Skirt.*

[Regular wholesale price, $2.70; net price, amount realized after deducting average discount, $2.53; retail price, $4 and up; cloth, all-worsted serge.]

Stock cost:		
Cloth, all-worsted serge.		
Number of yards of cloth used in skirt, 2.		
Cost of cloth per yard, $0.55, total	$1.10	
Cost of trimming	.15	
Total cost of stock		$1.25
Labor cost:		
Sponging and pressing	.15	
Cutting	.10	
Making	.40	
Total labor cost	.65	
Factory expense[1]	.18	
Total manufacturing expense		.83
Selling expense[2]		.12
General expense[2]		.07
Final cost (factory cost plus selling and general expense)		2.27

CLOTH MAKING.	Cost per yard.
Stock	$0.3740
Productive labor	.0405
Nonproductive labor	.0021
Department materials	.0185
General expense	.0309
Total manufacturing cost	.4660
Credit waste	.002
Net manufacturing cost	.464
Mill selling price	.55

(*v*) *Skirt.*

[Regular wholesale price, $5; net price, amount realized after deducting average discount, $4.85; retail price, $7.50 and up; cloth, all-wool serge.]

Stock cost:		
Cloth, all-wool serge.		
Number of yards of cloth used in skirt, 2¾.		
Cost of cloth per yard, $0.74, total	$2.03	
Cost of trimming	.15	
Total stock cost		$2.18
Labor cost:		
Sponging	.055	
Cutting	.110	
Making	.950	
Total	1.115	
Factory expense[1]	.290	
Total manufacturing expense		1.405
Selling expense[2]		.380
General expense[2]		.250
Final cost (factory cost plus selling and general expense)		4.215

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[1] Distributed to each garment on basis of productive labor in each garment.

[2] Distributed to each garment on basis of ratio of total selling and general expense to total value of output.

CLOTH MAKING.

	Cost per yard.
Stock	$0.453
Productive labor	.081
Nonproductive labor	.02
Department materials	.035
General expense	.065
Total manufacturing cost	.654
Credit waste	.003
Net manufacturing cost	.651
Mill selling price	.74

PART IV.—SECTION 2.

REPORT ON READY-MADE CLOTHING AND WEARING APPAREL.

FANCY KNIT GOODS.

The investigation into the cost of manufacturing fancy knit goods was representative both in the products studied and in its extent. Some 40 establishments were investigated, and these were scattered among 10 different States, including both eastern and western districts of the United States.

The type of establishments visited embraced manufacturers who sell direct to the retailer, those who sell both to retailer and jobber, and those who sell to the jobber only.

These establishments employ 7,279 operatives, with a total amount paid out in wages during the year of $2,219,841.67 and with net sales amounting to $9,287,238.

Knitting forms one of the great divisions of fabric structure and differs radically in the principle of producing fabric from that of weaving, its basis being the formation of a fabric or web by means of a series of interlocking loops, from one or more continuous threads. Different systems of interlocking the loops produce different styles of stitching, each being best suited for certain kinds of fabric.

The machines used in this manufacture are of two general types, the circular machine and the flat-bed machine. The latter, used extensively in this industry, is an imported machine.

As different machines are used for making the different kinds of knit fabrics, their separation into hard and fast divisions is not feasible, as the same machine can be used for making different fabrics by modifications of its operation or by using special attachments or devices.

In the presentation of the information secured these goods are divided into two general groups.

The first includes garments such as sweaters, sweater coats, ladies' sweater vests, skirts, and bathing suits.

The second includes hats, caps, hoods, shawls, toques, scarfs, gloves, mittens, hosiery, and socks.

SWEATER GOODS.

Sweater coats and sweaters are constructed both from the flat web and from the tubular fabric. The garments are shaped either by cutting the parts to form or by fashioning them on the machine. When the garments are cut to form they are shrunk to the natural lines of the body by means of a wooden form.

This class of goods is marketed in one of three ways by the manufacturer—by selling only to the jobber, to the jobber and retailer, or to the retailer exclusively.

Usually, where this last method is followed, the manufacturer produces what is known to the trade as "handmade and hand-finished garments." This class of goods is considered of superior quality, both as to materials and workmanship. This latter is for the reason that they are made on hand machines and the entire finishing processes, including the sewing, are also handwork.

HOSIERY.

Stockings and socks are manufactured on machines of the circular latch needle type, and, also, on straight rotary machines. The former, however, are the ones generally used in the United States.

The machines used may be either full or partially automatic.

In the manufacture of women's stockings the full automatic machine may run continuously from stocking to stocking without assistance from the operator, while in the manufacture of half hose the machines must be stopped at the end of each article, although the machines are full automatic.

Seamless hosiery was originally made on hand machines, and in shaping the heel and toe the operator was compelled to change the needles for each formation. This method has largely been done away with as a result of new devices and attachments.

Full-fashioned hosiery may be either seamed or seamless, accordingly as it is made on a circular or a flat-bed knitting machine. In the former variety the sock or stocking is knit with plain or tuck stitch as usual until the ankle part is reached, and from thence the web is narrowed to conform to the shape of the leg, either by dropping a certain number of stitches or by knitting the stitches narrower and closer together. Strictly speaking, such hosiery can not be called full-fashioned, but the term is applied rather loosely to it by the trade. Seamed full-fashioned hosiery, the genuine kind, is made on the flat-bed straight knitting machine.

GLOVES.

Gloves, like many other knitted garments, are made either on a circular or a Lamb machine. The better quality of gloves are usually made on the latter, the production of which is about 2 dozen pair a day, while the lower grades are made on the circular machine with an average capacity of 6 dozen pair for the same period.

SELLING EXPENSE.

As it has become the custom of the manufacturer of fancy knit goods to supply the market direct, there is necessarily added to the manufacturing cost an important element of selling expense.

The establishments visited show this expense to be as follows:

Cost of selling and distribution.

(*a*) Commissions and salaries for salesmen	$357, 904. 75
(*b*) Traveling expenses of salesmen	44, 548. 01
(*c*) Rent and maintenance of outside selling office	28, 293. 63
(*d*) Advertising	37, 302. 10
(*e*) Maintenance of sample trunks	1, 792. 00
(*f*) Freight and cartage (outgoing)	33, 553. 92
(*g*) Interest charges	112, 051. 09
Total cost of selling and distribution in factories investigated	615, 445. 50
Total amount of sales	9, 287, 238. 00

Selling and cost of distribution is 6.6 per cent of total sales.

In addition to the above selling expense there is the cost of boxes, labels, bands, and packing. This is not included in the above statement, for the reason that this expense is controlled almost exclusively by the purchaser and is subject to his whim or fancy.

Formerly this class of goods was marketed through commission houses, the line of samples being of a very narrow range compared with the manufacturer's present attempt to produce original designs and models. The products of the earlier period were inferior to those of to-day, both in style and finish.

The above condition of affairs has greatly enhanced the risk that a particular line, style, or finish will remain in vogue no longer than a season. Taste in knitted garments changes so rapidly that the ingenuity of the designer is heavily taxed, and therefore in no sense can this class of goods be considered as standardized.

In presenting the data secured, the following methods have been adopted: (*a*) Individual discussion of typical garments and (*b*) tables with a general discussion of a range of garments.

MEN'S SWEATER COAT.

Men's sweater coat No. 501.—To manufacture a dozen of these garments requires 15 pounds of 2/16's colored worsted yarn, valued at $14.40; and trimmings, consisting of buttons, lining, thread, and braid, to the value of $1.70. For the waste made in the manufacture of these garments 12 cents was received by the mill, which brings the net value of stock and trimmings to $16.05.

In the conversion of this stock the cost of winding amounts to $0.211; knitting, $2.967; cutting, 5 cents; sewing, $0.928; and finishing, 22 cents; or a total cost for labor of $4.376.

The department materials and general expense amount to $1.469.

The net cost to the mill of a dozen garments is $21.895.

An additional charge of 65 cents is made for boxes, labels, bands, and packing, but as this is part of the selling rather than the manufacturing expense, the same has been omitted.

A single garment finished will weigh 19 ounces and is made to sell at $3.75 per garment. The mill in which this garment is made receives $30 per dozen garments, less 12 per cent, or $26.40. This mill sells direct to the retailer.

Net stock and trimmings		$16.05
Conversion:		
Labor	$4.376	
Department materials and general expense	1.469	
Total manufacturing cost		5.845
Net total mill cost		21.895

Net stock is 73.30 per cent of net total mill cost.
Labor is 19.99 per cent of net total mill cost.
Labor is 74.87 per cent of total manufacturing cost.

Men's sweater coat No. 502.—The stock entering into the manufacture of a dozen of these garments is composed of 9 pounds of 2/18's white worsted yarn plus 9 pounds of 2/23's worsted yarn, making a total value of $14.40.

Trimmings consist of buttons, linings, and thread, costing $1.65.

The labor cost per dozen garments is as follows: Winding, 50 cents; knitting, $1.75; cutting, 43 cents; sewing, 74 cents; mending, 24 cents; finishing, 19 cents; total labor cost of $3.83.

Overhead charges, including department materials, $1.46.

There is an additional charge for boxes, bands, labels, and packing to the amount of 65 cents, which has been considered in the selling expense.

The finished garment weighs 21 ounces and is manufactured to retail at $3.50 per garment. The manufacturer receives $24 per dozen garments, less 6 per cent, or $22.56, and the jobber $30 per dozen.

Net stock and trimmings		$16.05
Conversion:		
Labor	$3.83	
Department materials and general expense	1.46	
Total manufacturing cost		5.29
Net total mill cost		21.34

Net stock, 75.21 per cent of net total mill cost.
Labor, 17.95 per cent of net total mill cost.
Labor, 72.40 per cent of total manufacturing cost.

Men's plain sweater coat No. 503.—The stock entering into the manufacture of a dozen of these garments is composed of 14 pounds of colored worsted and cotton yarn, the proportion of the former to the latter being as 61 is to 39. This stock is valued at $4.98, and the trimmings, consisting of buttons and thread, at 24 cents, bringing the net value of stock and trimmings to $5.22.

In the conversion of this stock, the winding costs 14 cents; knitting, 15 cents; cutting, 5 cents; sewing, $1.63; mending, 25 cents; and finishing, 10 cents; or a total cost for labor of $1.32.

Department materials and overhead charges amount to $1.13.

The net cost to the mill for a dozen of these garments is $7.86.

For boxes, labels, bands, and packing, a charge of 7 cents is made, but as this is a selling rather than a manufacturing expense, the same has been omitted.

A single finished garment will weigh 18 ounces and is made to sell for $1 per garment. The manufacturer receives $7.50 per dozen, less 4 per cent, or $7.20, while the jobber receives $9 per dozen garments.

Net stock and trimmings		$5.22
Conversion:		
Labor	$1.32	
Department materials and general expense	1.32	
Total manufacturing cost		2.64
Net total mill cost		7.86

Net stock is 66.41 per cent of net total mill cost.
Labor is 16.79 per cent of net total mill cost.
Labor is 50 per cent of total manufacturing cost.

Men's sweater coat No. 504.—The stock entering into the manufacture of a dozen of these garments is composed of 15 pounds of 4/18's colored worsted and 6 pounds of 2/20's woolen yarns, valued at $14.85, and the trimmings, consisting of lining, buttons, and thread, at 75 cents. The waste—2¼ pounds—made in the conversion of this stock was sold by the mill for 45 cents, which brings the net value of the stock and trimmings to $15.15.

In converting this stock into the finished garment the winding of the yarn cost 57 cents; the knitting, $1.65; cutting, .275 cents; sewing, $1.045; mending, 11 cents; and finishing, 78 cents; a total of $4.43.

The department materials and overhead charges amount to $1.50.

The net cost therefore of a dozen of these garments to the mill is $21.08.

An item of 75 cents, charged to the manufacturing expense for boxes, labels, bands, and packing, has been omitted, as this properly belongs to the selling expense.

A single finished garment weighs 24½ ounces and was made to sell at $5. The manufacturer receives for a dozen of these garments $27.50, less 2 per cent, or $26.95, and the jobber receives $36 per dozen garments.

Net stock and trimmings		$15.15
Conversion:		
Labor	$4.43	
Department materials and general expense	1.50	
Total manufacturing cost		5.93
Net total mill cost		21.08

Net stock is 71.87 per cent of net total mill cost.
Labor is 21.02 per cent of net total mill cost.
Labor is 74.70 per cent of total manufacturing cost.

Men's sweater coat No. 505.—The stock entering into the manufacture of a dozen of these garments is composed of 28 pounds of woolen and worsted yarn, in the proportions of about 70 to 30, and is valued at $19.14, and the trimmings, consisting of buttons and thread, at 85 cents. The waste made in the manufacture of these garments amounted to 6 pounds, and was sold by the mill for 24 cents, making the net value of stock and trimmings $19.75.

In converting this stock into the finished garment, the winding of the yarn costs 70 cents; knitting, $1; cutting, 15 cents; sewing (handwork), $3.03; and the mending and finishing, 20 cents; or a total labor cost of $5.08.

The department materials and overhead charges amounted to 77 cents.

The net total cost to the mill, therefore, for a dozen of these garments is $25.60.

For boxes, labels, bands, and packing a charge of 52 cents is made, but this has been deducted from the manufacturing expense and has been taken into consideration in the selling expense, as the same is not properly chargeable to the former.

A single garment finished will weigh 26¾ ounces, and is made to sell at from $5 to $6. The manufacturer receives per dozen garments $33 net and the jobber $48.

Net stock and trimmings		$19.75
Conversion:		
Labor	$5.08	
Department materials and general expense	.77	
Total manufacturing cost		5.85
Net total mill cost		25.60

Net stock is 77.15 per cent of net total mill cost.
Labor is 19.84 per cent of net total mill cost.
Labor is 86.84 per cent of total manufacturing cost.

Men's sweater coat No. 506.—The stock entering into the manufacture of a dozen of these garments is composed of 24½ pounds of 3/18's colored worsted yarn, valued at $22.05, less credit waste of 48 cents; total $21.57.

Trimmings consist of buttons, linings, thread, and hangers, costing 80 cents.

The labor cost per dozen garments is as follows: Winding and spooling, $1.26; knitting, 9 cents; cutting, 17 cents; sewing, $2.87; mending, 43 cents; finishing, 8 cents; total labor cost, $8.90.

Overhead charges, including department materials, $3.38.

There is an additional charge for boxes, bands, labels, and packing to the amount of 50 cents, which has been considered in the selling expense.

The finished garment weighs 28¾ ounces, and is manufactured to retail at $6. The manufacturer receives $54 per dozen garments less 6 per cent, or $50.76, selling to retail dealers only.

Net stock and trimmings		$22.37
Conversion:		
Labor	$8.90	
Department materials and general expense	3.38	
Total manufacturing cost		12.28
Net total mill cost		34.65

Net stock, 64.56 per cent of net total mill cost.
Labor, 25.69 per cent of net total mill cost.
Labor, 72.48 per cent of total manufacturing cost.

Men's sweater coat No. 507.—The stock entering into the manufacture of a dozen of these garments is composed of 25 pounds of 1/2's R. colored Oxford worsted yarn, less 25 cents for waste, costing $19.75.

Trimmings consist of buttons, linings, and thread, costing 51 cents.

The labor cost per dozen garments is as follows: Winding, $1.25; knitting, $3.85; cutting, 35 cents; sewing, $4.42; mending, 9 cents; finishing and pressing, 10 cents; total labor, $9.16.

Overhead charges, including department materials, $5.71.

There is an additional charge for boxes, bands, labels, and packing to the amount of 72 cents, which is included in the selling expense.

The finished garment weighs 30 ounces and is manufactured to retail at $10 per garment. The manufacturer receives $52 per dozen garments, less 7 per cent, or $48.36. The above garments are sold to retail dealers only, and are handmade and hand finished.

Net stock and trimmings		$20.26
Conversion:		
Labor	$10.16	
Department materials and general expense	5.71	
Total manufacturing cost		15.87
Net total mill cost		36.13

Net stock, 56.07 per cent of net total mill cost.
Labor, 28.12 per cent of net total mill cost.
Labor, 64.02 per cent of total manufacturing cost.

Men's sweater coat No. 508.—The stock entering into the manufacture of a dozen of these garments is composed of 9 pounds of 2/18's and 9 pounds of 2/23's white woolen yarn, valued at $14.40.

Trimmings consist of buttons, linings, and thread, costing $1.65.

The labor cost per dozen garments is as follows: Winding, 48 cents; knitting, $1.75; cutting, 43 cents; sewing, 74 cents; mending, 24 cents; finishing, 19 cents; making a total of $3.80.

Overhead charges, including department materials, $1.46.

There is an additional charge for boxes, bands, labels, and packing to the amount of 65 cents, which has been considered in the selling expense.

The finished garment weighs 21 ounces and is manufactured to retail at $3.50 per garment. The manufacturer receives $24 per dozen garments, less 6 per cent, or $22.56, and the jobber $30 per dozen.

Net stock and trimmings		$16.05
Conversion:		
Labor	$3.83	
Department materials and general expense	1.46	
Total manufacturing cost		5.29
Net total mill cost		21.34

Net stock, 75.21 per cent of net total mill cost.
Labor, 17.95 per cent of net total mill cost.
Labor, 72.40 per cent of total manufacturing cost.

Men's sweater coat No. 509.—The stock entering into the manufacture of a dozen of these garments is composed of 12 pounds of 2/13's colored worsted yarn plus 10 pounds of 1/3's cotton. The worsted yarn is valued at $5.76 and the cotton at $2.40, making a total of $8.16.

Trimmings consist of buttons, linings, and thread, costing 75 cents.

The labor cost per dozen garments is as follows: Winding, 22 cents; knitting, 30 cents; cutting, 10 cents; sewing, 98 cents; mending, 30 cents; finishing, 10 cents; making a total of $2.

Overhead charges, including department materials, $2.20.

There is an additional charge for boxes, bands, labels, and packing to the amount of 7 cents, which is included in the selling expense.

The finished garment weighs 28 ounces and is manufactured to retail at $2.50 per garment. The manufacturer receives $18 per dozen garments less 4 per cent, or $17.28, and the jobber $24 per dozen.

Net stock and trimmings		$8.91
Conversion:		
Labor	$2.00	
Department materials and general expense	2.20	
Total manufacturing cost		4.20
Net total mill cost		13.11

Net stock 67.96 per cent of net total mill cost.
Labor 15.26 per cent of net total mill cost.
Labor 47.62 per cent of total manufacturing cost.

Men's sweater coat No. 510.—The stock entering into the manufacture of a dozen of these garments is composed of 22 pounds of 2/15's colored woolen yarns, valued at $18.15, less 4 cents for waste; total value $18.11.

Trimmings consist of buttons, linings, and thread, costing 73 cents.

The labor cost per dozen garments is as follows: Winding, 42 cents, knitting, $2.25; cutting, 25 cents; mending, 25 cents; finishing; $1.50; making a total of $4.67.

Overhead charges, including department materials, 70 cents.

There is an additional charge for boxes, bands, labels, and packing to the amount of 60 cents, which is included in the selling expense.

The finished garment weighs 28½ ounces. The retail price is $3.50. The manufacturer receives $30 per dozen net.

Net stock and trimmings		$18.84
Conversion:		
Labor	$4.67	
Department materials and general expense	.70	
Total manufacturing cost		5.37
Net total mill cost		24.21

Net stock 77.82 per cent of net total mill cost.
Labor 19.29 per cent of net total mill cost.
Labor 86.95 per cent of total manufacturing cost.

Men's sweater coat No. 511.—The stock entering into the manufacture of a dozen of these garments is composed of 20 pounds of 2/15's colored woolen yarn, valued at $16.50, less 5 cents for waste, a total of $16.45.

Trimmings consist of buttons, linings, and thread, costing 73 cents.

The labor cost per dozen garments is as follows: Winding, 36 cents; knitting, $2; cutting, 25 cents; mending, 25 cents; finishing and pressing, $1.50, a total of $4.36.

Overhead charges, including department materials, 70 cents.

There is an additional charge for boxes, bands, labels, and packing to the amount of 60 cents, which has been charged to the selling expense.

The finished garment weighs 26 ounces and is manufactured to retail at $3 per garment. The manufacturer receives $27 per dozen garments net.

Net stock and trimmings		$17.18
Conversion:		
Labor	$4.36	
Department materials and general expense	.70	
Total manufacturing cost		5.06
Net total mill cost		22.24

Net stock, 77.25 per cent of net total mill cost.
Labor, 19.60 per cent of net total mill cost.
Labor, 86.17 per cent of total manufacturing cost.

Men's sweater coat No. 512.—The stock entering into the manufacture of a dozen of these garments is composed of 18 pounds of 4/16's colored worsted yarn, total value $14.

Trimmings consist of buttons and thread, costing 28 cents.

The labor cost per dozen garments is as follows: Winding, 24 cents; knitting, $4.60; sewing, $5.89; mending, 26 cents; finishing, 12 cents, making a total of $11.11.

Overhead charges, including department materials, $2.725.

There is an additional charge for boxes, bands, labels, and packing to the amount of 82 cents, which is included in the selling expense.

The finished garment weighs 24 ounces and is manufactured to retail at $6.50 per garment. The manufacturer receives $48 per dozen garments less 7 per cent, or $44.64. These garments are hand-made and hand finished and are sold by the manufacturers to retail dealers only.

Net stock and trimmings		$14.68
Conversion:		
Labor	$11.11	
Department materials and general expense	2.725	
Net manufacturing cost		13.835
Net total mill cost		28.51

Net stock, 51.49 per cent of net total mill cost.
Labor, 38.97 per cent of net total mill cost.
Labor, 80.30 per cent of total manufacturing cost.

Men's full-fashioned sweater coat No. 513.—The stock entering into the manufacture of a dozen of these garments is composed of 17 pounds of 2/20's colored worsted yarn, valued at $18.70.

Trimmings consist of buttons, hangers, and thread, costing 54 cents.

The labor cost per dozen garments is as follows: Winding, 50 cents; knitting, $2.58; sewing, $1.2175; mending, 10 cents; finishing, pressing, and inspecting, 18 cents; making a total of $4.5775.

Overhead charges, including department materials, $2.7185.

There is an additional charge for boxes, bands, labels, and packing to the amount of 16 cents, which is included in the selling expense.

The finished garment weighs 21¼ ounces, and is manufactured to retail at $6 per garment. The manufacturer receives $42 per dozen garments less 8 per cent, or $38.64. These garments are sold to the retail dealers only.

Net stock and trimmings		$19.2440
Conversion:		
Labor	$4.5775	
Department materials and general expense	2.7185	
Total manufacturing cost		7.296
Net total mill cost		26.54

Net stock, 72.51 per cent of net total mill cost.
Labor, 17.25 per cent of net total mill cost.
Labor, 62.74 per cent of total manufacturing cost.

Men's sweater coat No. 514.—The stock entering into the manufacture of a dozen of these garments is composed of 9⅜ pounds of 2/32's colored worsted yarn and 10 pounds of 2/24's colored worsted yarn, valued at $17.57, less 1 pound 9 ounces of waste, at 10 cents per pound, making the total value of yarn $17.42.

Trimmings consist of buttons, linings, and thread, costing 85 cents.

Labor cost per dozen garments is as follows: Winding, 42 cents; knitting, $4.40; cutting, 11 cents; sewing, $2.75; mending, 17 cents; finishing, 27 cents; total, $8.07.

Overhead charges, including department materials, $5.50.

There is an additional charge for boxes, bands, labels, and packing to the amount of 80 cents, which is included in the selling expense.

The finished garment weighs 23¾ ounces, and is manufactured to retail at $5 per garment, the manufacturer receiving $34.88 per dozen garments, and the jobber $39.06 per dozen, net.

Net stock and trimmings		$18.17
Conversion:		
Labor	$8.07	
Department materials and general expense	5.54	
Total manufacturing cost		13.61
Net total mill cost		31.78

Net stock, 57.17 per cent of net total mill cost.
Labor, 25.39 per cent of net total mill cost.
Labor, 59.29 per cent of total manufacturing cost.

Men's cardigan jacket No. 515.—The stock entering into the manufacture of a dozen of these garments is composed of 16½ pounds of 2/18's colored woolen yarn, valued at $11.22, and the trimmings, consisting of linings, buttons, thread, and hangers, at 58 cents. For the waste made in the manufacture of these garments the mill receives 12 cents, making the net value of stock and trimmings $11.68.

In the conversion of this stock into the finished garments, the processes through which it passes and the costs of same are as follows: Spooling, 88 cents; knitting, $2.58; cutting, 17 cents; sewing, $1.73; mending, 43 cents; and finishing, 8 cents; or a total cost for labor of $5.86. To the above costs $2.30 is added for department materials and overhead charges. This will bring the net cost to the mill for a dozen of these garments to $19.84.

For boxes, labels, bands, and packing a charge of 50 cents is made, but this has been taken into consideration in the selling expense and has therefore been omitted from the manufacturing expense.

A single garment when finished weighs 20¾ ounces and is manufactured to sell at $2.50 per garment. The manufacturer receives per dozen garments $24 net.

Net stock and trimmings		$11.68
Conversion:		
Labor	$5.86	
Department materials and general expense	2.30	
Total manufacturing cost		8.16
Net total mill cost		19.84

Net stock is 58.87 per cent of net total mill cost.
Labor is $29.54 per cent of net total mill cost.
Labor is 71.81 per cent of total manufacturing cost.

MEN'S BATHING SUIT.

Men's bathing suit No. 516.—The stock entering into the manufacture of a dozen of these garments is composed of 12 pounds of 2/16's colored worsted yarn, costing $9.60, less 13 cents for waste; total, $9.47.

Trimmings cost 5 cents.

The labor cost per dozen garments is as follows: Winding, 44 cents; knitting, $2.14; cutting, 18 cents; sewing, 53 cents; mending, 18 cents; finishing, 33 cents; total labor cost, $3.80.

Overhead charges, including department materials, $0.9625.

There is an additional charge for boxes, bands, labels, and packing to the amount of 30 cents, which is included in the selling expense.

The finished garment weighs 15 ounces and is manufactured to retail at $3 per garment. The manufacturer receives $18 per dozen garments, less 2 per cent, or $17.64, and the jobber $24 per dozen.

Net stock and trimmings		$9.52
Conversion:		
Labor	$3.80	
Department materials and general expense	.9625	
Total manufacturing cost		4.7625
Net total mill cost		14.2825

Net stock, 66.65 per cent of net total mill cost.
Labor, 26.61 per cent of net total mill cost.
Labor, 79.79 per cent of total manufacturing cost.

Men's bathing suit No. 517.—The stock entering into a dozen of these garments is composed of 12 pounds of 2/24's colored worsted yarn, and is valued at $9 and the trimmings at 5 cents. In the manufacture of these garments the mill receives 30 cents for the waste made, making the net value of stock and trimmings $8.75.

To convert this stock into the finished garments the labor for winding costs 33 cents; knitting, 55 cents; cutting, $0.285; sewing, $0.715; mending, 11 cents; and finishing, 22 cents; or a total labor cost per dozen garments of $2.20. In addition to the above, 88 cents is added for department materials and overhead charges, bringing the net total cost to the mill to $11.38.

For boxes, labels, bands, and packing a charge of 75 cents is made. This has been deducted from the manufacturing and placed in the selling expense.

A single garment when finished weighs 14 ounces, and is made to sell at $3 per garment. The manufacturer receives per dozen garments $16.50, less 2 per cent, or $16.17, and the jobber $21 per dozen garments.

Net stock and trimmings		$8.75
Conversion:		
Labor	$2.20	
Department materials and general expense	.88	
Total manufacturing cost		3.08
Net total mill cost		11.83

Net stock is 73.96 per cent of net total mill cost.
Labor is 18.60 per cent of net total mill cost.
Labor is 71.43 per cent of total manufacturing cost.

LADIES' SWEATER COAT.

Ladies' sweater coat No. 518.—To manufacture a dozen of these garments requires 14¾ pounds of 2/16's colored worsted yarn valued at $14.16, and trimmings, consisting of linings, buttons, and thread, valued at $1.01. The waste made in the manufacture of these garments was sold by the mill for 28 cents, making the net value of stock and trimmings $14.89.

In the conversion of this stock the cost of winding yarn amounts to $0.208; the knitting, $4.485; cutting, 15 cents; sewing, $1.021; and finishing, 15 cents, a total cost for labor of $6.014.

The department materials and overhead charges amount to $1.492.

The net cost to the mill, therefore, of a dozen of these garments is $22.396.

The charge of 80 cents for boxes, labels, bands, and packing has been omitted, the same being properly chargeable to the selling expense.

The finished garment weighs 16 ounces and is made to sell at $4.50 per garment. This mill sells direct to the retailer and receives, per dozen garments, $36 less 12 per cent, or $31.68.

Net stock and trimmings		$14.89
Conversion:		
Labor	$6.014	
Department materials and general expense	1.492	
Total manufacturing cost		7.506
Net total mill cost		22.396

Net stock is 66.49 per cent of net total mill cost.
Labor is 26.85 per cent of net total mill cost.
Labor is 80.12 per cent of total manufacturing cost.

Ladies' sweater coat (full-fashioned) No. 519.—In the manufacture of a dozen of these garments 18 pounds of 2/20's, 10's quality, plain worsted yarn valued at $19.80 is used. The trimmings, consisting of buttons and hangers, amount to $0.544, making the net value of stock and trimmings $20.344.

In converting the stock into the finished garment, the cost of winding is 50 cents; knitting, $6.08; sewing, $1.345; mending, 10 cents; and inspecting, 15 cents, or a total cost for labor of $8.175.

The overhead charges and department materials amount to $3.129.

The net cost of a dozen of these garments is $31.638.

For boxes, labels, bands, and packing a charge of 16 cents is made, but this item has been deducted for the reason that the same should be included in the selling expense.

A single garment, finished, will weigh 21 ounces, and is made to sell at $7. The manufacturer of these garments sells direct to the retailer and receives per dozen $48, less 8 per cent, or $44.16.

Net stock and trimmings		$20.344
Conversion:		
Labor	$8.175	
Department materials and general expense	3.119	
Total manufacturing cost		11.294
Net total mill cost		31.638

Net stock is 64.30 per cent of net total mill cost.
Labor is 25.84 per cent of net total mill cost.
Labor is 72.38 per cent of total manufacturing cost.

Ladies' sweater coat No. 520.—In the manufacture of a dozen of these garments 13½ pounds of 2/25's colored woolen yarns is used. The value of this yarn is $9.45. The trimmings, such as linings, buttons, thread, and hangers, cost 68 cents. For the waste made in the manufacture of these garments the mill receives 30 cents, which brings the net value of stock and trimmings to $10.13.

In the conversion of this stock into the finished garments, the processes through which it passes and the costs of same are as follows: Winding and spooling, 70 cents; knitting, $3.80; cutting, 17 cents; sewing, $2.30; mending, 43 cents; and finishing, 8 cents, or a total of $6.48.

The department materials and overhead charges amount to $2.85.

The net cost to the mill of a dozen of these garments, therefore, is $20.16.

Boxes, labels, bands, and packing, costing 55 cents, are charged to these garments, but as this is a part of the selling expense the amount has been omitted.

The finished garment weighs 15 ounces, and is made to sell at $3.50 per garment. For a dozen of these garments the manufacturer receives $30 net.

Net stock and trimmings		$9.83
Conversion:		
Labor	$6.48	
Department materials and general expense	3.85	
Total manufacturing cost		10.33
Net total mill cost		20.16

Net stock is 48.76 per cent of net total mill cost.
Labor is 32.14 per cent of net total mill cost.
Labor is 62.73 per cent of total manufacturing cost.

Ladies' sweater coat No. 521.—In the manufacture of a dozen of the above garments 15 pounds of 2/20s plain woolen yarn is used. The value of this yarn is $10.50. The trimmings, consisting of linings, buttons, and thread, are valued at $0.495. For the waste made in the manufacture of these garments the mill receives 6 cents, which brings the net value of stock and trimmings to $10.935.

In converting this stock into the finished garments the winding of yarn costs 36 cents; the knitting, 82 cents; cutting, 15 cents; sewing, 87 cents; and mending, 20 cents; a total of $2.40.

The department materials and overhead charges amount to $0.52.

The total, therefore, to the mill of a dozen of these garments is $13.855.

A charge of 52 cents is made for boxing, labels, bands, and packing. These, however, belong to the selling expense, and for that reason are omitted from the manufacturing cost.

A single finished garment will weigh 14½ ounces and is made to sell at $2.50 per garment. The manufacturer receives per dozen garments $16.50, less 12 per cent, or $14.52, while the jobber receives $22.50 per dozen garments.

Net stock and trimmings		$10.935
Conversion:		
Labor	$2.40	
Department materials and general expense	.52	
Total manufacturing cost		2.92
Net total mill cost		13.855

Net stock is 78.92 per cent of net total mill cost.
Labor is 17.32 per cent of net total mill cost.
Labor is 82.19 per cent of total manufacturing cost.

Ladies' sweater coat No. 522.—In the manufacture of a dozen of these garments 10½ pounds of 2/30s colored worsted yarn and 1⅛ pounds of colored worsted, cotton, and silk yarn, valued at $10.69, is used. The trimmings, such as linings, buttons, and thread, amount to $1.32. The waste made in the manufacture of these garments is

3½ pounds, for which the mill receives 17½ cents, making the net value of stock and trimmings $11.835.

In converting this stock into the finished garment the winding costs 24 cents; the warping, 30 cents; knitting, $1.28; cutting and steaming, 38 cents; sewing, 77 cents; mending, 17 cents; and finishing, 12 cents; a total of $3.26.

The department materials and overhead charges amount to $2.62.

The net cost of these garments to the mill amounts to $17.715.

The charge of 85 cents for boxes, labels, bands, and packing has been omitted from the cost of these garments, the same being properly chargeable to selling expense.

The finished weight of a single garment is 11 ounces and it is made to sell at $5. For a dozen of these garments the manufacturer receives $25, less 10 per cent, or $22.50, while the jobber receives $33 per dozen garments.

Net stock and trimmings		$11.835
Conversion:		
Labor	$3.26	
Department materials and general expense	2.62	
Total manufacturing cost		5.88
Net total mill cost		17.715

Net stock is 66.81 per cent of net total mill cost.
Labor is 18.40 per cent of net total mill cost.
Labor is 55.44 per cent of total manufacturing cost.

Ladies' sweater coat No. 523.—The stock used in the manufacture of a dozen of these above garments is composed of 14 pounds of 2/18's colored worsted yarn, valued at $14. The trimmings, such as linings, buttons, and thread, amount to $1.10. For the waste made in the manufacture of these garments the mill receives 30 cents, which brings the net value of stock and trimmings to $14.80.

The conversion of this stock into the finished garment costs for winding of the yarn 38 cents; knitting, $3.57; cutting, $0.275; sewing, $0.915; mending, 11 cents; and finishing, 51 cents; or a total labor cost of $5.76.

The department materials and overhead charges amount to $1.56.

The net cost to the mill, therefore, of a dozen of these garments is $22.12.

For boxes, labels, bands, and packing a charge of 75 cents is made, but as this belongs to the selling rather than to the manufacturing expense, the same has been omitted.

A single garment finished weighs 16 ounces and is made to sell at from $3.50 to $4 per garment. The manufacturer receives for a dozen of these garments $25, less 2 per cent, or $24.50, while the jobber receives $30 per dozen garments.

Net stock and trimmings		$14.80
Conversion:		
Labor	$5.76	
Department materials and general expense	1.56	
Total manufacturing cost		7.32
Net total mill cost		22.12

Net stock is 66.91 per cent of net total mill cost.
Labor is 26.04 per cent of net total mill cost.
Labor is 78.69 per cent of total manufacturing cost.

Ladies' sweater coat No. 524.—The stock entering into the manufacture of a dozen of these garments is composed of 16½ pounds of 2/30's colored worsted yarn valued at $13.20, and the trimmings, consisting of buttons and thread, at 47 cents. The waste made in the manufacture of these garments is sold for 27 cents, making the net value of the stock and trimmings $12.40.

In converting this stock into the finished garments, the processes through which it passes and the costs of same are as follows: Winding of yarn, 63 cents; knitting, 86 cents; cutting, 40 cents; sewing, 90 cents; and mending and finishing, 35 cents; a total cost of $3.14.

The department materials, such as paraffin, needles, etc., and the overhead charges amount to $2.94.

The net cost of these garments, therefore, to the mill is $19.48.

An additional charge of 60 cents is made for boxes, bands, labels, and packing, but this item should be included in the selling expense, and has therefore been omitted from the cost of these garments.

A single garment when finished weighs 18 ounces, and is made to retail at $4, the manufacturer receiving $24 per dozen garments, less 7 per cent, or $22.72, and the jobber $33 per dozen.

Net stock and trimmings		$13. 40
Conversion:		
Labor	$3. 14	
Department materials and general expense	2. 94	
Total manufacturing cost		6. 08
Net total mill cost		19. 48

Net stock is 68. 79 per cent of net total mill cost.
Labor is 16.12 per cent of net total mill cost.
Labor is 51.64 per cent of total manufacturing cost.

Ladies' sweater coat No. 525.—The stock entering into these garments is composed of 14⅛ pounds of 2/20's plain worsted yarn, and is valued at $11.37, while the trimmings, consisting of linings, buttons, and thread, cost 87 cents. In the manufacture of these garments the waste made is sold for 14 cents, making the net value of stock and trimmings $12.10.

To convert this stock into the finished garments cost $0.285 for winding; $0.285 for warping; 82 cents for knitting; 25 cents for cutting; 84 cents for sewing; and 32 cents for mending and finishing; or a total cost for labor of $2.80. The department materials and overhead charges amount to $2.59, making the net total cost to the mill of a dozen of these garments $17.49.

The charge of $1.84 for boxes, labels, bands, and packing is properly chargeable to the selling expense, and has therefore been omitted.

A single garment when finished weighs 16½ ounces, and is manufactured to sell at $4.50 per garment. The manufacturer receives per dozen garments $24, less 7 per cent, or $22.32, and the jobber $36.

Net stock and trimmings		$12. 10
Conversion:		
Labor	$2. 80	
Department materials and general expense	2. 59	
Total manufacturing cost		5. 39
Net total mill cost		17. 49

Net stock is 69.10 per cent of net total mill cost.
Labor is 15.99 per cent of net total mill cost.
Labor is 51.95 per cent of total manufacturing cost.

Ladies' sweater coat No. 526.—The stock entering into the manufacture of a dozen of these garments is composed of 16 pounds of 2/16's plain and colored worsted yarn, valued at $14, and the trimmings, consisting of linings, buttons, and thread, at 64 cents. The waste made amounts to 4 pounds, for which the mill receives 40 cents, making the net value of stock and trimmings $14.24.

To convert this stock into the finished garments, the cost for winding amounts to $1.01; knitting, $2.20; cutting, 35 cents; sewing, $1.34; mending, 9 cents; finishing, 5 cents; and pressing and examining, 15 cents; or a total cost for labor of $3.74. In addition to the labor cost $3.74 is added for department materials and overhead charges. This will bring the net cost to the mill of a dozen of these garments to $23.17.

An additional charge of 72 cents is made for boxes, labels, bands, and packing, but this has been omitted from the manufacturing and charged to the selling expense, the same not being properly chargeable to the former.

A single garment when finished will weigh 16 ounces and is manufactured to sell at from $5 to $5.50 per garment. The manufacturer receives, per dozen garments, $36, less 7 per cent, or $33.48.

Net stock and trimmings		$14.24
Conversion:		
Labor	$5.19	
Department materials and general expense	3.74	
Total manufacturing cost		8.93
Net total mill cost		23.17

Net stock is 61.46 per cent of net total mill cost.
Labor is 22.40 per cent of net total mill cost.
Labor is 58.12 per cent of total manufacturing cost.

Ladies' sweater coat No. 527.—The stock required to manufacture a dozen of these garments is 19 pounds of single 3R colored worsted yarn valued at $13.25, and the trimmings, consisting of buttons and thread, at 39 cents. The waste made in manufacturing these garments amounts to 2 pounds, for which the mill receives 10 cents, making the net value of stock and trimmings $13.54.

In the conversion of this stock into the finished garments the winding of the yarn costs 46 cents; knitting, $2; cutting, 18 cents; sewing, 65 cents; mending, 17 cents; and finishing, 12 cents; or a total cost for labor of $3.58. To this must be added $3.18 for department materials and overhead charges, making the net cost to the mill of a dozen of these garments $20.30.

The charge of $1 for boxes, labels, bands, and packing has been deducted from the manufacturing and included in the selling expense, as it is to this latter expense that the same is properly chargeable.

A single finished garment will weigh 23⅔ ounces, and is manufactured to sell at $7. The manufacturer receives for these garments per dozen $33, less 10 per cent, or $29.70, and the jobber receives $48.

Net stock and trimmings		$13.54
Conversion:		
Labor	$3.58	
Department materials and general expense	3.18	
Total manufacturing cost		6.76
Net total mill cost		20.30

Net stock is 66.70 per cent of net total mill cost.
Labor is 17.64 per cent of net total mill cost.
Labor is 52.96 per cent of total manufacturing cost.

Ladies' sweater coat No. 528.—The stock entering into the manufacture of a dozen of these garments is composed of 14 pounds of 2/30's white worsted yarn and 4 pounds of 2/20's white worsted yarn, costing $14.68, less 12 cents for waste, or $11.36.

Trimmings, consisting of 1 dozen Preston collars costing $1.70, with the additional buttons, linings, hooks and eyes, make the total cost $2.95.

The labor cost per dozen garments is as follows: Winding, 35 cents; knitting, $1.21; cutting, 35 cents; sewing, $1.50; mending and finishing, 35 cents; total labor cost, $3.76.

Overhead charges, including department materials, $3.76.

There is an additional charge for boxes, bands, labels, and packing to the amount of $1.96, which is included in the selling expense.

The finished garment weighs 22¼ ounces and is manufactured to retail at $6 per garment. The manufacturer receives $33 per dozen garments, less 7 per cent, or $31.69; and the jobber $48 per dozen.

Net stock and trimmings		$17.51
Conversion:		
Labor	$3.76	
Department materials and general expense	3.67	
Total manufacturing cost		7.43
Net total mill cost		24.94

Net stock, 70.21 per cent of net total mill cost.
Labor, 15.08 per cent of net total mill cost.
Labor, 50.61 per cent of total manufacturing cost.

Ladies sweater coat No. 529.—The stock entering into the manufacture of a dozen of these garments is composed of 13½ pounds combination worsted and cotton yarn as follows: One end of 2/20's worsted, one end of 1/12's cotton, and two ends of 1/6–1/2's, costing $5.53 plus one end of 2/20's worsted and one end of 1/12's cotton weighing 1½ pounds costing 87 cents, yarn valued at $6.40 less 9 cents for waste, making the total value $6.31.

Trimmings consist of buttons, linings, and thread, costing 50 cents.

The labor cost per dozen garments is as follows: Winding, $0.375; knitting, 65 cents; cutting, $1.25; sewing, $2.25; mending $1.25; finishing $0.525; total labor, $2.025.

Overhead charges, including department materials, 79 cents.

There is an additional charge for boxes, bands, labels, and packing to the amount of 34 cents, which is included in the selling expense.

The finished garment weighs 21½ ounces and is manufactured to retail at $2.50 per garment. The manufacturer receives $15 per dozen garments less 7 per cent, or $13.95, and the jobber $21 per dozen.

Net stock and trimmings		$6.81
Conversion:		
Labor	$2.025	
Department materials and general expense	.79	
Total manufacturing cost		2.815
Net total mill cost		9.62

Net stock, 70.75 per cent of net total mill cost.
Labor, 21.04 per cent of net total mill cost.
Labor, 71.94 per cent of total manufacturing cost.

Ladies sweater coat No. 530.—The stock entering into the manufacture of a dozen of these garments is composed of 13 pounds of 2/15's colored worsted yarn, value $10.40.

Trimmings consist of buttons, linings, and thread, costing 86½ cents.

The labor cost per dozen garments is as follows: Winding, 40 cents; knitting, $1.69; cutting, 15 cents; sewing, 88 cents; mending, 13 cents; finishing, 28 cents; total, $3.53.

Overhead charges, including department materials, $1.06.

There is an additional charge for boxes, bands, labels, and packing to the amount of 30 cents, which is included in the selling expense.

The finished garment weighs 16 ounces and is manufactured to retail at $3 per garment. The manufacturer receives $19.50 per dozen garments less 2 per cent, or $19.11, and the jobber receives $24 per dozen garments less 7 per cent, or $23.02.

Net stock and trimmings		$11.265
Conversion:		
Labor	$3.53	
Department materials and general expense	1.06	
Total manufacturing cost		4.59
Net total mill cost		15.85

Net stock, 71.07 per cent of net total mill cost.
Labor, 22.27 per cent of net total mill cost.
Labor, 76.91 per cent of total manufacturing cost.

Ladies sweater coat No. 531.—The stock entering into the manufacture of a dozen of these garments is composed of 15½ pounds of 2/32's colored worsted yarn, valued at $14.34, less 3¾ pounds of waste valued at $0.375, making total value $13.965.

Trimmings consist of buttons, linings, and thread, costing 85 cents.

The labor cost per dozen garments is as follows: Winding, $0.265; warping, $0.265; knitting, $1.71; cutting, 40 cents; sewing, $1.25; mending, 17 cents; finishing, 22 cents; making a total of $4.28.

Overhead charges, including department materials, $4.115.

There is an additional charge for boxes, bands, labels, and packing to the amount of 80 cents, which is included in the selling expense.

The finished garment weighs 15–2/3 ounces and is manufactured to retail at $5 per garment. The manufacturer receives $26.50 per dozen garments net, and the jobber $30.69 per dozen.

Net stock and trimmings		$14.815
Conversion:		
Labor	$4.28	
Department materials and general expense	4.115	
Total manufacturing cost		8.395
Net total mill cost		23.21

Net stock, 64 per cent of net total mill cost.
Labor, 18 per cent of net total mill cost.
Labor, 51 per cent of total manufacturing cost.

Ladies sweater coat No. 532.—The stock entering into the manufacture of a dozen of these garments is composed of 16 pounds of 2/23's white woolen yarn, valued at $11.20.

Trimmings consist of buttons, linings, and thread, costing $1.15.

The labor cost per dozen garments is as follows: Winding, 48 cents; knitting, $1.75; cutting, 43 cents; sewing, 74 cents; mending, 24 cents; finishing, 19 cents; making a total of $3.83.

Overhead charges, including department materials, $1.20.

There is an additional charge for boxes, bands, labels, and packing to the amount of 65 cents, which is included in the selling expense.

The finished garment weighs 17½ ounces and is manufactured to retail at $2 per garment. The manufacturer receives $18 per dozen less 7 per cent, or $17.74. The above garments are sold to retail dealers only.

Net stock and trimmings		$12.35
Conversion:		
Labor	$3.83	
Department materials and general expense	1.20	
Total manufacturing cost		5.03
Net total mill cost		17.38

Net stock, 71.06 per cent of net total mill cost.
Labor, 22.04 per cent of net total mill cost.
Labor, 76.14 per cent of total maufacturing cost.

Ladies' sweater coat No. 533.—The stock entering into the manufacture of a dozen of these garments is composed of 20¼ pounds of colored worsted yarn valued at $16.20.

Trimmings consist of buttons and thread, costing 28 cents.

The labor cost per dozen garments is as follows: Winding, 24 cents; knitting, $4.32; sewing, $6.05; mending, 26 cents; finishing, 12 cents, making a total of $10.99.

Overhead charges, including department materials, $3.405.

There is an additional charge for boxes, bands, labels, and packing to the amount of 82 cents, which is included in the selling expense.

The finished garment weighs 27 ounces, and is manufactured to retail at $6.50 per garment. The manufacturer receives $48 per dozen less 7 per cent, or $44.64. These garments are handmade and hand finished, and are sold by the manufacturer to retail dealers only.

Net stock and trimmings		$16.48
Conversion:		
Labor	$10.99	
Department materials and general expense	3.405	
Total manufacturing cost		14.395
Net total mill cost		30.875

Net stock 53.38 per cent of net total mill cost.
Labor 35.60 per cent of net total mill cost.
Labor 76.35 per cent of total manufacturing cost.

Ladies' sweater coat No. 534.—The stock entering into the manufacture of a dozen of these garments is composed of 15 pounds of 2/30's colored worsted yarn, valued at $12, less 2¾ pounds waste, valued at $0.165, making total value $11.835.

Trimmings consist of buttons, lining, braid, hooks and eyes, and thread, costing 76 cents.

The labor cost per dozen garments is as follows: Winding, 30 cents; drawing in, 45 cents; warping, 25 cents; knitting, 75 cents; cutting, $0.175; sewing, $0.875; mending, $0.275; finishing, $0.125, making a total of $3.20.

Overhead charges, including department materials, $2.575.

There is an additional charge for boxes, bands, labels, and packing to the amount of 60 cents, which is included in the selling expense.

The finished garment weighs 21⅓ ounces and is manufactured to retail at $5 per garment, the manufacturer receiving $27 per dozen garments, less 7 per cent, or $25.11, and the jobber receiving $36 per dozen garments.

Net stock and trimmings		$12.595
Conversion:		
Labor	$3.20	
Department materials and general expense	2.565	
Total manufacturing cost		5.775
Net total mill cost		18.370

Net stock is 68.56 per cent of net total mill cost.
Labor is 17.42 per cent of net total mill cost.
Labor is 55.41 per cent of total manufacturing cost.

Ladies' sweater coat No. 535.—The stock entering into the manufacture of a dozen of these garments is composed of 13 pounds of 2/23's plain woolen yarn, valued at $8.45, less 1¾ pounds of waste at 10 cents, making total value $8.35.

Trimmings consist of buttons, braid, linings, and thread, costing 40 cents.

Labor cost per dozen garments is as follows: Winding, 16 cents; knitting, $1.17; cutting, $0.125; sewing, $0.675; mending, 20 cents; finishing, $0.125, making a total of $2.455.

Overhead charges, including department materials, $1.90.

There is an additional charge for boxes, bands, labels, and packing to the amount of 60 cents, which is included in the selling expense.

The finished garment weighs 16⅓ ounces and is manufactured to retail at $3 per garment, the manufacturer receiving $18 per dozen garments, less 7 per cent, or $17.43, and the jobber $24 per dozen.

Net stock and trimmings		$8.75
Conversion:		
Labor	$2.455	
Department materials and general expense	1.90	
Total manufacturing cost		4.355
Net total mill cost		13.105

Net stock is 66.77 per cent of net total mill cost.
Labor is 18.73 per cent of net total mill cost.
Labor is 56.37 per cent of total manufacturing cost.

LADIES' SWEATER VEST.

Ladies' sweater vest No. 536.—The stock entering into the manufacture of a dozen of these garments is composed of 5¼ pounds of 3/16's colored worsted yarn, valued at $4.20.

Trimmings consist of buttons and thread valued at $0.485.

The labor cost per dozen garments is as follows: Winding, 6 cents; knitting, $2.40; sewing, $3.60; mending, 26 cents; finishing, 12 cents; total, $6.44.

Overhead charges, including department materials, $2.28.

There is an additional charge for boxes, bands, labels, and packing to the amount of 58 cents, which is included in the selling expense.

The finished garment weighs 7 ounces and is manufactured to retail at $3 per garment, the manufacturer receiving $24 per dozen garments, less 7 per cent, or $22.32. The above garments are sold to retail dealers only.

Net stock and trimmings		$4.685
Conversion:		
Labor	$6.44	
Department materials and general expense	2.28	
Total manufacturing cost		8.72
Net total mill cost		13.405

Net stock 34.95 per cent of net total mill cost.
Labor 48.04 per cent of net total mill cost.
Labor 73.85 per cent of total manufacturing cost.

Ladies' vest No. 537.—The stock entering into the manufacture of a dozen of these garments is composed of combination of 3¾ pounds of 2/25's white woolen yarn and 2/20's worsted yarn, costing $2.64, and a combination of one-fourth pound of 2/20's cotton and 2/30's worsted yarn costing 16 cents, or $2.80, less 1 pound of waste at 8 cents per pound, making total yarn value $2.72.

Trimmings consist of buttons, linings, thread, and tape, costing 52 cents.

The labor cost per dozen garments is as follows: Winding, 65 cents; cutting, 24 cents; sewing, 20 cents; mending, 58 cents; finishing, 22 cents; making a total labor cost $1.305.

Overhead charges, including department materials, 84 cents.

There is an additional charge for boxes, bands, labels, and packing to the amount of 80 cents, which is included in the selling expense.

The finished garment weighs 4¾ ounces, and is manufactured to retail at $1.25 per garment. The manufacturer receives $7 per dozen garments, less 7 per cent, or $6.51. The jobber receives $9 per dozen.

Net stock and trimmings		$3.24
Conversion:		
Labor	$1.305	
Department materials and general expense	.84	
Total manufacturing cost		2.145
Net total mill cost		5.385

Net stock, 60.17 per cent of net total mill cost.
Labor, 24.23 per cent of net total mill cost.
Labor, 60.84 per cent of total manufacturing cost.

LADIES' SKIRT.

Ladies' skirt No. 538.—The stock entering into the manufacture of a dozen of these garments is composed of 8 pounds of 2/30's colored worsted yarn and one-half pound of 2/15's colored worsted yarn, valued at $6.775.

Trimmings consist of braid and fastener, costing 20 cents.

The labor cost per dozen garments is as follows: Winding, 18 cents; knitting, 50 cents; cutting, 28 cents; mending, 20 cents; finishing, $0.075; total labor cost, $2.235.

Overhead charges, including department materials, $1.385.

There is an additional charge for boxes, bands, labels, and packing to the amount of 28 cents, which is included in the selling expense.

The finished garment weighs 11½ ounces, and is manufactured to retail at $2 per garment. The manufacturer receives $12.50 per dozen garments, less 7 per cent, or $11.625. The jobber receives $18 per dozen.

Net stock and trimmings		$6.975
Conversion:		
Labor	$1.235	
Department materials and general expense	1.385	
Total manufacturing cost		2.62
Net total mill cost		9.595

Net stock, 72.69 per cent of net total mill cost.
Labor, 12.87 per cent of net total mill cost.
Labor, 47.14 per cent of total manufacturing cost.

Ladies' skirt No. 539.—The stock entering into the manufacture of a dozen of these garments is composed of 8 pounds of 2/24's colored worsted yarn and one-eighth pound of 2/30's printed worsted yarn, costing $7.21 less 7 cents for waste, or $7.14.

Trimmings consist of braid and fastener, costing 20 cents.

The labor cost per dozen garments is as follows: Winding, 18 cents; knitting, 35 cents; cutting, 9 cents; sewing, 27 cents; mending, 26 cents; finishing, 21 cents; total labor cost, $1.16.

Overhead charges, including department materials, $1.82.

There is an additional charge for boxes, bands, labels, and packing to the amount of 45 cents, which is included in the selling expense.

The finished garment weighs 9¾ ounces and is manufactured to retail at $2.50 per garment. The manufacturer receives $12.58 net per dozen and the jobber $13.95 per dozen.

Net stock and trimmings		$7.25
Conversion:		
Labor	$1.16	
Department materials and general expense	1.82	
Total manufacturing cost		2.98
Net total mill cost		10.23

Net stock, 70.87 per cent of net total mill cost.
Labor, 11.34 per cent of net total mill cost.
Labor, 38.93 per cent of total manufacturing cost.

Misses' pull-over sweater No. 540.—Stock entering into the manufacture of a dozen of these garments is composed of 10¼ pounds of 2/30's worsted yarn, valued at $8.20 less 1½ pounds of waste, valued at $0.135, making total value $8.065.

The labor cost per dozen garments is as follows: Winding, 43 cents; knitting, 57 cents; cutting, 35 cents; sewing, 75 cents, mending and finishing, 35 cents; total, $2.45.

Overhead charges, including department materials, $1.88.

There is an additional charge for boxes, bands, labels, and packing to the amount of 45 cents, which is included in the selling expense.

The finished garment weighs 11⅝ ounces and is manufactured to retail at $2.50 per garment. The manufacturer receives $16.50 per dozen garments, less 7 per cent, or $15.35, and the jobber $22.50 per dozen.

Net stock and trimmings		$8.065
Conversion:		
Labor	$2.45	
Department materials and general expense	1.88	
Total manufacturing cost		4.33
Net total mill cost		12.395

Net stock is 65.07 per cent of net total mill cost.
Labor is 19.77 per cent of net total mill cost.
Labor is 56.58 per cent of total manufacturing cost.

Misses' sweater coat No. 541.—The stock entering into the manufacture of a dozen of these garments is composed of 8 pounds of 2/20's colored woolen yarn valued at $4.80:

Trimmings consist of buttons, linings, and thread, costing $0.615.

The labor cost per dozen garments is as follows: Winding, 30 cents; knitting, 82 cents; cutting, 10 cents; sewing, 66 cents; mending, 12 cents; finishing, 34 cents; a total of $2.34.

Overhead charges, including department materials, $0.585.

There is an additional charge for boxes, bands, labels, and packing to the amount of 30 cents, which is included in the selling expense.

The finished garment weighs 10 ounces and is manufactured to retail at $1.80 per garment. The manufacturer receives $9.50 per dozen garments less 2 per cent, or $9.31, and the jobber $12 per dozen less 2 per cent, or $11.76.

Net stock and trimmings		$5.415
Conversion:		
Labor	$2.34	
Department materials and general expenses	.585	
Total manufacturing cost		2.925
Net total mill cost		8.34

Net stock, 64.93 per cent of net total mill cost.
Labor, 28.06 per cent of net total mill cost.
Labor, 80 per cent of total manufacturing cost.

Misses' sweater coat No. 542.—The stock entering into the manufacture of a dozen of these garments is composed of 11 pounds of 2/16's colored worsted yarn valued at $10.56, and the trimmings, consisting of linings, buttons, and thread, at 83 cents. The waste made in the manufacture of these garments amounts to 3 pounds and is sold by the mill for $0.315, making the net value of stock and trimmings $11.075.

In the conversion of this stock the processes through which it passes and the costs of same are as follows: Winding, $0.156; knitting, $3.41; cutting, 15 cents; and sewing, $0.707; or a total cost for labor of $4.423.

The department materials and overhead charges amount to 66 cents.

The net total cost to the mill, therefore, of a dozen of these garments is $16.158.

An additional charge of 50 cents is made for boxes, labels, bands, and packing, but this has been deducted from the manufacturing and has been added to the selling expense, as it is not properly chargeable to the former.

The single garment when finished weighs 10¼ ounces, and is made to sell at $2.50. The mill at which this particular garment was made sells direct to the retailer and receives per dozen garments $21 less 12 per cent, or $18.48.

Net stock and trimmings		$11.075
Conversion:		
Labor	$4.423	
Department materials and general expense	.66	
Total manufacturing cost		5.083
Net total mill cost		16.158

Net stock is 68.54 per cent of net total mill cost.
Labor is 27.37 per cent of net total mill cost.
Labor is 87.02 per cent of total manufacturing cost.

Misses' sweater coats No. 543.—The stock used in the manufacture of a dozen of these garments amounts to 10¼ pounds of 2/25's colored woolen yarn, valued at $7.18, and the trimmings at 58 cents. For the waste made in the manufacture of these garments the mill receives 9 cents, making the net value of stock and trimmings $7.67.

In the conversion of this stock, the cost of winding and spooling yarn amounts to 54 cents; the knitting, $1.19; cutting, 17 cents; sewing, $1.60; mending, 17 cents; and finishing, 8 cents; a total cost for labor of $3.75.

The department materials and overhead charges amount to $1.55.

These items bring the net cost of a dozen of these garments to $12.97.

For boxes, labels, bands, and packing an additional charge of 25 cents is made, but this has been omitted for the reason that it is a part of the selling rather than the manufacturing expense.

The single garment when finished weighs 12¾ ounces, and is made to sell at from $1.50 to $1.75 per garment. These garments are sold by the manufacturer for $13.50 per dozen net.

Net stock and trimmings		$7.67
Conversion:		
Labor	$3.75	
Department materials and general expense	1.55	
Total manufacturing cost		5.30
Net total mill cost		12.97

Net stock is 59.14 per cent of net total mill cost.
Labor is 28.91 per cent of net total mill cost.
Labor is 70.75 per cent of total manufacturing cost.

JUVENILE SWEATER COAT.

Juvenile sweater coat No. 544.—The stock entering into the manufacture of a dozen of these garments is composed of 10 pounds of 2/21's colored woolen yarn, costing $5.50, less 5 cents for waste; total value, $5.45.

Trimmings consist of buttons, linings, and thread, 45 cents.

The labor cost per dozen garments is as follows: Winding, $0.205; knitting, 65 cents; cutting, $0.125; sewing, $0.175; mending, $0.125; finishing, $0.425; total labor cost, $1.705.

Overhead charges, including department materials, 64 cents.

There is an additional charge for boxes, bands, labels, and packing to the amount of 24 cents, which is included in the selling expense.

The finished garment weighs 11 ounces and is manufactured to retail at $2 per garment. The manufacturer receives $12 per dozen garments, less 7 per cent, or $11.16, and the jobber $15 per dozen.

Net stock and trimmings		$5.90
Conversion:		
Labor	$1.705	
Department materials and general expense	.64	
Total manufacturing cost		2.345
Net total mill cost		8.245

Net stock, 71.56 per cent of net total mill cost.
Labor, 20.68 per cent of net total mill cost.
Labor, 72.71 per cent of total manufacturing cost.

Juvenile sweater coat No. 545.—The stock entering into the manufacture of a dozen of these garments is composed of 13½ pounds of a combination of cotton and woolen yarn, wool count 2/21's, cotton count 2/14's, valued at $5.265, plus 1½ pounds 2/21's woolen yarn costing $0.825, total value $6.09.

Trimmings consist of buttons, linings, and thread, costing 50 cents.

The labor cost per dozen garments is as follows: Winding, $0.305; knitting, 65 cents; cutting, $0.125; sewing, $0.225; mending, $0.125; finishing, $0.525; a total labor cost of $1.955.

Overhead charges, including department materials, 68 cents.

There is an additional charge for boxes, bands, labels, and packing to the amount of 34 cents, which is included in the selling expense.

The finished garment weighs 18½ ounces and is manufactured to retail at $2 per garment. The manufacturer receives $13.50 per dozen garments less 7 per cent, or $12.555. The jobber receives $18 per dozen.

Net stock and trimmings		$6.485
Conversion:		
Labor	$1.955	
Department materials and general expense	6.80	
Total manufacturing cost		2.635
Net total mill cost		9.120

Net stock, 71.11 per cent of net total mill cost.
Labor, 21.44 per cent of net total mill cost.
Labor, 74.19 per cent of total manufacturing cost.

Juvenile sweater coat No. 546.—The stock entering into the manufacture of a dozen of these garments is composed of 4⅝ pounds of worsted and cotton yarn, in the proportion of 77 per cent worsted to 23 per cent cotton, and is valued at $3.96, and the trimmings, consisting of lining, buttons, thread, and other trimmings, at 64 cents. The waste made in the manufacture of these garments amounts to only 4 ounces and is sold by the mill for $0.005, making the net value of the stock and trimmings $4.595.

In converting this stock into the finished garment the cost of winding the yarn amounts to 9 cents, the knitting $0.185, cutting 8 cents, sewing 64 cents, and mending and finishing 12 cents, a total of $1.115.

The department materials, such as paraffin and needles, and the overhead charges amount to $0.615.

The net cost of these garments, therefore, to the mill is $6.325.

An additional charge of 14 cents is made for boxes, bands, labels, and packing, but this has been omitted from the cost of these garments for the reason that the same should be included in the selling rather than in the manufacturing expense.

A single garment when finished weighs 6⅞ ounces and is made to sell at $1.25, the manufacturer receiving $9 per dozen less 10 per cent, or $8.10, and the jobber $12 per dozen garments.

Net stock and trimmings		$4.595
Conversion:		
Labor	$1.115	
Department materials and general expense	.615	
Total manufacturing cost		1.73
Net total mill cost		6.325

Net stock is 72.65 per cent of net total mill cost.
Labor is 17.63 per cent of net total mill cost.
Labor is 64.45 per cent of total manufacturing cost.

Boys' sweater coat No. 547.—To manufacture a dozen of these garments requires 9 pounds of 2/25's colored woolen yarn, valued at $6.30. The trimmings, consisting of linings, buttons, thread, and hangers, cost 52 cents. In the manufacture of these garments three-fourths of a pound of waste is made, for which the mill receives $0.075, making the net value of stock and trimmings $6.745.

To convert this stock into the finished garments the cost for spooling is $0.53; knitting, $1.11; cutting, 17 cents; sewing, $1.67; mending, 17 cents; and finishing, 7 cents; or a total labor cost of $3.72.

Department materials and overhead charges amount to $1.44.

The net cost to the mill of a dozen of these garments is $11.905.

The additional charge of 25 cents for boxes, labels, bands, and packing has been deducted from the manufacturing and included in the selling expense, as the same is not properly chargeable to the former.

A single finished garment weighs 11 ounces and is manufactured to sell at from $1.50 to $1.75. The manufacturer receives for a dozen of these garments $13.50 net.

Net stock and trimmings		$6.745
Conversion:		
Labor	$3.72	
Department materials and general expense	1.44	
Total manufacturing cost		5.16
Net total mill cost		11.905

Net stock is 56.66 per cent of net total mill cost.
Labor is 31.25 per cent of net total mill cost.
Labor is 72.09 per cent of total manufacturing cost.

Boys' sweater coat No. 548.—The stock entering into a dozen of these garments is composed of 4⅛ pounds of 2/30's worsted yarn and 3⅞ pounds of 1/8's and 1/10's cotton yarn, valued at $3.48, and trimmings, such as buttons and thread, at 30 cents, making the total net value of stock and trimmings $3.78.

The labor cost in converting this stock into the finished garment is as follows: $0.105 for winding of yarn, 12 cents for knitting, 10 cents for cutting, 21 cents for sewing, 12 cents for mending, and 43 cents for finishing; a total of $1.085.

The department materials and general expense amount to .845 cents.

This brings the net cost of a dozen of these garments to $5.71.

The mill has added 30 cents as the cost for boxing, labels, bands, and packing, but as this is a selling, rather than manufacturing expense, the same has been omitted.

The single garment when finished weighs 10 ounces and is made to sell for $1, the manufacturer receiving $8 per dozen garments, less 10 per cent, or $7.80, and the jobber $9.50.

Net stock and trimmings		$3.78
Conversion:		
Labor	$1.085	
Department materials and general expense	.845	
Total manufacturing cost		1.93
Net total mill cost		5.71

Net stock is 66.29 per cent of net total mill cost.
Labor is 19 per cent of net total mill cost.
Labor is 56.22 per cent of total manufacturing cost.

Child's Buster Brown sweater coat No. 549.—The stock entering into the manufacture of a dozen of these garments is composed of 6 pounds of 2/16's colored worsted yarn, valued at $5.76, and the trimmings, consisting of buttons, linings, and thread, at 66 cents, making the total value of the stock and trimmings $6.42.

In converting this stock into the finished garments, the winding costs $0.085; knitting, $1.587; and sewing, $0.957; or a total cost for labor of $2.629.

The department materials and overhead charges amount to $0.309.

The net cost of a dozen of these garments to the mill is $9.358.

For boxes, labels, bands, and packing an additional charge of 31 cents is made, but this item has been omitted for the reason that it is chargeable to the selling, rather than to the manufacturing expense.

A single garment finished weighs 9¼ ounces, and is made to sell at $1.50. The mill making this particular garment sells direct to the retailer and receives $12 per dozen, less 12 per cent, or $10.56.

Net stock and trimmings		$6.42
Conversion:		
Labor	$2.629	
Department materials and general expense	.309	
Total manufacturing cost		2.938
Net total mill cost		9.358

Net stock is 68.60 per cent of net total mill cost.
Labor is 28.09 per cent of net total mill cost.
Labor is 89.48 per cent of total manufacturing cost.

Infant's sweater coat No. 550.—The stock entering into the manufacture of a dozen of these garments is composed of 3$\frac{9}{16}$ pounds of 2/8–1/2's white woolen yarn, valued at $3.38.

Trimmings consist of buttons, thread, and linings, costing 34 cents.

The labor cost per dozen garments is as follows: Winding, $0.105; knitting, 75 cents; sewing, 75 cents; finishing, 28 cents; making a total of $1.885.

Overhead charges, including department materials, $3.071.

There is an additional charge for boxes, bands, labels, and packing to the amount of $0.566, which is included in the selling expense.

The finished garment weighs 4¾ ounces. The manufacturer receives $13 per dozen garments less a discount of 39 cents, or $12.61.

Net stock and trimmings		$3.718
Conversion:		
Labor	$1.885	
Department materials and general expense	3.071	
Total manufacturing cost		4.956
Net total mill cost		8.674

Net stock 42.86 per cent of net total mill cost.
Labor 21.73 per cent of net total mill cost.
Labor 38.03 per cent of total manufacturing cost.

Ladies', men's, and misses' mittens.

[Cost per dozen pairs.]

	Weight per finished pair.									
	½ ounce.	½ ounce.	¾ ounce.	1 ounce.	1⅛ ounces.	1½ ounces.	1¾ ounces.	1¾ ounces.	2½ ounces.	4¾ ounces.
Net stock cost	$0.26	$0.42	$0.52	$0.47	$0.54	$1.48	$0.646	$0.81	$0.82	$2.04
Conversion:										
Labor	.537	.536	.355	.86	.694	.801	1.15	.726	.75	.49
Department material and general expenses	.846	.871	.577	.238	.084	.184	.34	.104	.094	.26
Total manufacturing cost	1.383	1.407	.932	1.098	.778	.985	1.49	.830	.844	.75
Net total mill cost	1.643	1.827	1.452	1.568	1.318	2.465	2.136	1.640	1.664	2.79
Boxes, bands, labels, and packing	.05	.05	.05	.08	.09	.090	.078	.09	.09	.10
Selling price to jobber	....	....	....	1.90	1.80	3.50	2.75	1.90	1.90	3.50
Selling price, jobber to retailer	1.90	1.90	1.90	2.25	2.25	4.50	3.50	2.25	2.25	4.50
Retail selling price per pair	.25	.25	.25	.25	.25	.50	.50	.25	.25	.50
	Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Net stock, per cent of net total mill cost	15.8	23.0	35.8	29.9	41.0	60.0	30.2	49.4	49.3	73.1
Labor, per cent of net total mill cost	32.7	29.3	24.4	54.9	52.7	32.5	53.8	44.3	45.1	17.6
Labor, per cent of total manufacturing cost	39.5	29.9	38.1	78.3	89.2	81.3	77.2	87.5	88.9	65.3

NOTE.—Unless otherwise noted, the manufacturer's selling price is subject to a discount for cash of from 2 to 10 per cent.

In the preceding table a number of ladies', men's, and misses' mittens are shown. These are typical garments ranging in weight from one-half to 4¾ ounces, and are presented in this form, not for the purpose of comparison, but as a matter of convenience. It will be readily understood why these garments are not comparable when it is known that not only does the stock entering into their manufacture vary as to quality, but there is also a wide margin of difference in the cost of labor. This variance in the cost of labor is due more largely to the type of machine on which these garments are made than to anything else. By way of illustration, the charge for knitting on a circular machine is considerably below the cost of ~~this~~ ~~same~~ process on the Lamb machine—the price on the first-named machine ranging from 10½ to 31½ cents, while on the latter machine the range is from 48 to 86 cents per dozen pairs. As regards the other processes, such as winding, sewing, mending, steaming and pressing, finishing and examining, the cost on a dozen pairs of one weight varies very little from that on a dozen pairs of some other weight.

The stock used in the manufacture of these several garments is composed of various sizes and qualities of woolen, worsted, cotton, and combination yarns, varying in price from 28 cents to $1.12 per pound.

Another item materially affecting the net cost of these garments to the mill is the general expense, which covers salaries, fuel, light, insurance, taxes, etc. In some instances this item is very low, while in others it appears extremely high.

The above table shows a line of mittens made to retail at 25 cents and 50 cents per pair.

Ladies' gloves from 1¼ to 2 ounces.

[Cost per dozen pairs.]

	Weight per finished pair.							
	1¼ ounces.	1⅓ ounces.	1½ ounces.	1⅝ ounces.	1⅝ ounces.	1⅝ ounces.	1$\frac{11}{16}$ ounces.	2 ounces.
Net stock cost	$0.505	$1.05	$1.00	$0.97	$1.179	$1.31	$0.80	$1.65
Conversion:								
Labor	.352	1.09	.97	1.105	1.242	1.671	.342	1.115
Department material and general expenses	.165	.22	.348	.365	.43	.154	.215	.435
Total manufacturing cost	.517	1.31	1.318	1.470	1.672	1.825	.557	1.550
Net total mill cost	1.022	2.36	2.318	2.440	2.851	3.135	1.357	3.200
Boxes, labels, bands, and packing	.060	.10	.06	.06	.099	.09	.06	.06
Selling price to jobber	1.50	3.625	3.50	3.50	3.50	3.75	1.90	4.50
Selling price jobber to retailer	1.85	4.50	4.50	4.50	4.50	4.50	2.395	5.00
Retail selling price per pair	.25	.50	.50	.50	.50	.50	.30	.75
	Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Net stock, per cent of net total mill cost	49.4	44.5	43.1	39.8	41.4	41.8	58.9	51.6
Labor, per cent of net total mill cost	34.4	46.2	41.8	45.3	43.5	53.3	25.2	34.8
Labor, per cent of total manufacturing cost	68.2	83.2	73.6	75.2	74.3	91.6	61.4	71.9

NOTE.—Unless otherwise noted, the manufacturer's selling price is subject to a discount for cash of from 2 to 10 per cent.

The stock entering into a dozen pairs of gloves of the various weights shown in the above table is composed, in some instances, of pure worsted yarn, while in others both worsted and cotton yarns are used. The cotton yarns used cost 30 cents and 32 cents per pound, while the worsted yarns range in price from 75 cents to $1.10 per pound.

The above presentation is for the sake of convenience and not for purposes of comparison, as some of the garments are made on circular machines, while others are manufactured on a Lamb machine. Where this is true the cost of knitting on a Lamb machine is very much higher than on the circular machine. By way of illustration, the cost of knitting on a Lamb machine varies from 72 cents to 75 cents, while the cost of knitting on the circular machine does not exceed 10 cents per dozen pairs of gloves. Except in certain instances where much additional work is required in "fingering" the gloves, the cost of labor in the other processes varies very little as between the garments shown in the above table. This marked difference in the cost of knitting is very largely due to the fact that on a Lamb machine the capacity is about two dozen pairs per day, while on a circular machine the capacity will reach six dozen pairs per day.

The principal processes employed in the manufacture of these garments are winding, knitting, cutting, sewing, mending, shaping, and finishing.

The general expense, or overhead charges, varies according to the size of the mill and the production of each particular line.

The costs shown in the above table are on ladies' gloves ranging in weight from 1⅙ to 2 ounces, and are manufactured to sell at 25 cents, 30 cents, 50 cents, and 75 cents, the popular price being 50 cents per pair of gloves.

MEN'S WOOLEN AND WORSTED GLOVES.

The stock entering into the manufacture of gloves, shown in the accompanying table, is composed of wool, worsted, and cotton yarns, used in combinations, varying in price from 32 cents for cotton to 93 cents for worsted yarn per pound.

The processes of manufacture are exactly the same as those used in the manufacture of ladies' gloves.

The production varies according to the kind of machines upon which the gloves are made, ranging from 2 dozen pairs a day on a Lamb machine to 6 dozen on a circular machine.

The labor cost of a dozen pairs on a Lamb machine varies from $1.16 to $1.28, while the labor cost on a circular machine is 89 cents per dozen pairs.

Men's woolen and worsted gloves.

[Cost per dozen pairs.]

	Weight per finished pair.						
	2¼ ounces.	2½ ounces.	2⅔ ounces.	2⅞ ounces.	2⅛ ounces.	3 1/12 ounces.	3⅛ ounces.
Net stock cost	$1.221	$0.96	$1.32	$1.196	$1.60	$1.74	$1.54
Conversion:							
Labor	1.283	.44	.89	1.163	1.16	1.1075	1.238
Department materials and general expenses	.435	.15	.24	.455	.94	.47	.164
Total manufacturing cost	1.718	.59	1.13	1.618	2.10	1.5775	1.402
Net total mill cost	2.939	1.55	2.45	2.814	3.70	3.3175	2.942
Boxes, bands, labels, and packing	.097	.06	.15	.095	.05	.06	.080
Selling price to jobber	3.625	1.90	3.625	3.625	....	5.00	3.75
Selling price, jobber to retailer	4.50	2.25	4.50	4.50	4.50	6.75	4.50
Retail selling price per pair	.50	.25	.50	.50	.50	.75	.50
	Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Net stock, per cent of net total mill cost	41.5	61.9	53.9	42.5	43.2	52.4	52.3
Labor, per cent of net total mill cost	43.6	28.4	36.3	41.3	31.4	33.4	42.1
Labor, per cent of total manufacturing cost	74.7	74.6	78.8	71.9	55.2	70.2	88.3

NOTE.—Unless otherwise noted, the manufacturer's selling price is subject to a discount for cash of from 2 to 10 per cent.

LADIES' HOSE—WOOLEN, WORSTED, CASHMERE, AND MERINO.

The stock used in the garments shown in the accompanying table is composed of wool, worsted, cotton, merino, and silk yarn. The yarn varies in price from 16 cents to $1.22 per pound. The styles shown are both seamless and full fashioned, and the price per pair varies from 25 cents to 50 cents retail.

The processes of manufacture include winding, knitting, looping, seaming, sewing, mending, cutting, inspecting, turning, dyeing, boarding, mating, finishing, and folding.

The labor cost of a pair of hose manufactured on a circular machine to sell for 25 cents varies from $0.233 to $0.382 per dozen pairs, and the stock entering into their manufacture varies from 39 cents to 90 cents. The labor cost of a pair of hose manufactured to sell for 50 cents (full fashioned) varies from 70 cents to 99 cents per dozen pairs, and the stock entering into the manufacture varies from $1.44 to $2.94 per dozen pairs.

Ladies' hose.

[Cost per dozen pairs.]

	Weight per finished pair.					
	1½ ounces.	2 ounces.	2⅓ ounces.	2⅝ ounces.	2⅝ ounces.	3 ounces.
Net stock cost	$0.905	$0.975	$0.87	$0.76	$0.71	$0.58
Conversion:						
Labor	.362	.505	.45	.422	.355	.295
Department material and general expenses	.18	.18	.18	.20	.43	.125
Total manufacturing cost	.542	.685	.63	.622	.785	.420
Net total mill cost	1.447	1.660	1.50	1.382	1.495	1.000
Boxes, bands, labels, and packing	.065	.065	.065	.05	.035	.037
Selling price to jobber	1.85	2.375	1.95	1.75	1.75	1.65
Selling price jobber to retailer						
Retail selling price per pair	.25	.35	.25	.25	.25	.25
	Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Net stock, per cent of net total mill cost	62.5	58.7	58.0	55.0	47.5	58.0
Labor, per cent of net total mill cost	25.0	30.4	30.0	30.5	23.7	29.5
Labor, per cent of total manufacturing cost	66.8	73.7	71.5	67.7	45.2	70.2

	Weight per finished pair.					
	3 ounces.	3 ounces.	3 ounces.	3 ounces.	3⅛ ounces.	3 5/12 ounces.
Net stock cost	$0.90	$0.39	$1.11	$1.22	$1.78	$0.49
Conversion:						
Labor	.382	.233	.475	.422	.615	.319
Department material and general expenses	.46	.35	.275	.20	.18	.35
Total manufacturing cost	.842	.583	.750	.622	.795	.669
Net total mill cost	1.742	.973	1.86	1.842	2.575	1.159
Boxes, bands, labels, and packing	.037		.065	.05	.065	
Selling price to jobber	[1] 1.80	1.60	2.25	2.25	3.375	1.85
Selling price jobber to retailer	2.10	2.10				2.25
Retail selling price per pair	.25	.25	.35	.35	.50	.25
	Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Net stock, per cent of net total mill cost	51.6	40.1	59.7	66.2	69.1	42.3
Labor, per cent of net total mill cost	21.9	23.9	25.5	22.9	23.9	27.5
Labor, per cent of total manufacturing cost	45.4	40.0	63.3	67.8	77.4	47.7

---

[1] Net.

Ladies' hose—Continued.

	Weight per finished pair.					
			Full fashion.			
	3¾ ounces.	4 ounces.	2¾ ounces.	3 ounces.	3 1/16 ounces.	3⅛ ounces.
Net stock cost	$0.73	$1.63	$1.44	$1.377	$1.70	$2.94
Conversion:						
Labor	.30	.582	.707	.87	.99	.99
Department material and general expenses	.135	.365	.352	.40	.40	.40
Total manufacturing cost	.435	.947	1.059	1.27	1.39	1.39
Net total mill cost	1.165	2.577	2.499	2.647	3.09	4.33
Boxes, bands, labels, and packing	.035	.07	....	.06	.06	.06
Selling price to jobber	1.85	3.50	3.75	3.15	4.00	6.00
Selling price jobber to retailer	....	....	....	....	....	....
Retail selling price per pair	.25	.50	.50	.50	....	....
	Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Net stock per cent of net total mill cost	62.7	63.2	57.7	52.1	55.0	67.9
Labor per cent of net total mill cost	25.7	22.6	28.3	32.9	32.0	22.9
Labor per cent of total manufacturing cost	69.0	61.5	66.8	68.6	71.2	71.2

Note.—Unless otherwise noted the manufacturer's selling price is subject to a discount for cash of from to 10 per cent.

MEN'S HALF HOSE.

The stock entering into the manufacture of the garments shown in the accompanying table is composed of wool, worsted, cotton, and merino yarn.

The price of the yarn varies from 16 cents to $1.18 per pound and is used in combinations.

The processes of manufacture are similar to those in the manufacture of ladies' hose.

The labor cost of a dozen pairs of seamless hose manufactured to retail at 25 cents a pair varies from 27 cents to $0.442, and the stock entering into their manufacture varies from 57 cents to 86 cents. The net manufacturing cost varies from $1.015 to $1.555 per dozen pairs.

Men's half hose.

	Weight per pair finished garments.							
	1½ ounces.	1 7/16 ounces.	1⅝ ounces.	1⅝ ounces.	1 11/16 ounces.	1 11/16 ounces.	2⅜ ounces.	2⅛ ounces.
Net stock cost	$0.86	$0.86	$0.775	$0.785	$0.75	$0.67	$0.44	$0.60
Conversion:								
Labor	.442	.38	.365	.277	.365	.312	.30	.30
Department material and general expenses	.20	.18	.18	.137	.265	.275	.30	.30
Total manufacturing cost	.642	.56	.545	.414	.630	.587	.60	.60
Net total mill cost per dozen pairs	1.502	1.42	1.320	1.199	1.380	1.257	1.04	1.20
Boxes, labels, bands, and packing	.05	.065	.065	.052	.06	....	.03	.03
Selling price to jobber	[1]1.75	1.80	1.75	1.70	1.75	1.75	[1].95	1.50
Selling price, jobber to retailer	....	....	....	....	....	....	1.10	2.00
Retail selling price per pair	.25	.25	.25	.25	.25	.25	.15	.25
	Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Net stock, per cent of net total mill cost	57.3	60.6	58.7	65.5	54.3	53.3	42.3	50.0
Labor, per cent of net total mill cost	29.4	26.8	27.6	23.1	26.4	24.8	28.8	25.0
Labor, per cent of total manufacturing cost	68.8	67.9	67.0	66.9	57.9	53.2	50.0	50.0

Men's half hose—Continued.

	Weight per pair finished garments.							
	2⅛ ounces.	2⅜ ounces.	2⅞ ounces.	3 ounces.	3 ounces.	4 ounces.	Full fashion.	
							1⅜ ounces.	1⅝ ounces.
Net stock cost	$0.79	$1.60	$0.585	$0.84	$0.57	$2.40	$1.18	$0.985
Conversion:								
Labor	.27	.32	.44	.382	.28	.31	.665	.755
Department material and general expenses	.307	.66	.275	.20	.125	.92	.34	.40
Total manufacturing cost	.577	.98	.715	.582	.405	1.23	1.005	1.155
Net total mill cost per dozen pairs	1.367	2.58	1.300	1.422	.975	3.63	2.185	2.140
Boxes, labels, bands, and packing	....	.06	.075	.05	.04	.06	....	.06
Selling price to jobber	1.85	....	1.75	[1] 1.75	1.65	....	3.37	2.50
Selling price, jobber to retailer	....	4.25	....	....	....	4.50	....	....
Retail selling price per pair	.25	.50	.25	.25	.25	.50	.50	....
	Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Net stock, per cent of net total mill cost	57.8	62.0	45.0	59.1	58.5	66.1	54.0	46.0
Labor, per cent of net total mill cost	19.8	12.4	33.8	26.9	28.7	8.5	30.4	35.3
Labor, per cent of total manufacturing cost	46.8	32.6	61.5	65.6	69.1	25.2	66.2	65.4

[1] Net.

NOTE.—Unless otherwise noted, the manufacturer's selling price is subject to a discount for cash of from 2 to 10 per cent.

Lumbermen's socks.

[Cost per dozen pairs.]

	Weight of finished garment.						
	4 ounces.	5½ ounces.	6¼ ounces.	9½ ounces.	11 ounces.	14 ounces.	16 ounces.
Net stock cost	$1.40	$2.45	$2.10	$1.77	$4.28	$2.76	$3.12
Conversion:							
Labor	.29	.59	.47	.75	.75	.75	.75
Department material and general expenses	.17	1.115	.27	1.31	1.31	1.31	1.31
Total manufacturing cost	.46	1.705	.74	2.06	2.06	2.06	2.06
Net total mill cost	1.86	4.155	2.84	3.83	6.34	4.82	5.18
Boxes, labels, bands, and packing	.05	.03	.10	.065	.06	.065	.06
Selling price to jobber	[1] 2.25	....	3.65	[1] 4.00	[1] 7.50	[1] 5.00	6.00
Selling price, jobber to retailer	....	4.00	4.50	4.75	9.00	6.00	7.50
Retail selling price per garment	.25	.50	.50	.50	1.00	.75	.85
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Net stock, per cent of net total mill cost	24.7	59.0	73.9	46.2	67.5	57.3	60.2
Labor, per cent of net total mill cost	15.4	14.2	16.5	19.6	11.8	15.6	14.5
Labor, per cent of total manufacturing cost	63.0	34.6	63.5	36.4	36.4	36.4	36.4

[1] Net.

NOTE.—Unless otherwise noted, the manufacturer's selling price is subject to a discount of from 2 to 10 per cent.

LUMBERMEN'S SOCKS.

The stock entering into the manufacture of the class of goods shown in the above table is composed of noils, shoddy, cotton, and worsted, usually in combinations, prices ranging from 22 to 40 cents per pound.

The labor cost, which includes knitting, looping, fulling, shaping, and finishing, is reduced to a minimum, as the processes of manufacture are simplified by the use of special machinery. The labor cost for socks ranging from 9 to 16 ounces per dozen pairs is, on the average, 75 cents.

Ladies' scarfs and shawls.

[Cost per dozen.]

	Weight per finished garment.					
	4¾ ounces.	5¾ ounces.	6 ounces.	6½ ounces.	9¼ ounces.	9½ ounces.
Net stock cost	$2.085	$3.15	$4.85	$3.62	$6.51	$5.775
Conversion:						
Labor	.26	.475	.745	.725	1.20	1.79
Department material and general expenses	.26	.57	.84	.68	2.07	1.345
Total manufacturing cost	.52	1.045	1.585	1.405	3.27	3.135
Net total mill cost	2.605	4.195	6.435	5.025	9.78	8.910
Boxes, labels, bands, and packing	.10	.20	.20	.20	.30	.25
Selling price to jobber	3.50	5.50	7.50	6.50	11.50	11.00
Selling price, jobber to retailer	4.50	7.50	10.50	8.50	15.00	15.00
Retail selling price per garment	.50	1.00	1.50	1.00	1.75	2.00
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Net stock, per cent of net total mill cost	80.0	75.1	75.4	72.0	66.6	64.8
Labor, per cent of net total mill cost	10.0	11.3	11.6	14.4	12.3	20.1
Labor, per cent of total manufacturing cost	50.0	45.5	47.0	51.6	36.7	57.1

NOTE.—Unless otherwise noted, the manufacturer's selling price is subject to a discount for cash of from 2 to 10 per cent.

LADIES' SCARFS AND SHAWLS.

The above table presents plain and honeycomb shawls varying in weight from 4¾ ounces to 9½ ounces, with prices ranging from 50 cents to $2 per garment, retail.

The stock entering into the manufacture of these garments costs on the average about 70 cents per pound and is composed of worsted yarn.

The labor processes include winding, drawing in, warping, knitting, cutting, sewing, mending, and finishing. These garments are manufactured on the Raschelle machine, an imported machine known to the trade as a flat machine to distinguish it from circular machines.

Ladies' hats, caps, hoods, etc.

[Cost per dozen.]

	Weight per finished garment.								
	4 ounces.	4¼ ounces.	4¾ ounces.	5½ ounces.	6 ounces.	7¼ ounces.	8 ounces.	8¼ ounces.	8½ ounces.
Net stock cost	$3.05	$3.29	$3.37	$3.825	$8.58	$4.08	$5.52	$6.47	$5.96
Conversion:									
Labor	.81	1.83	1.60	1.35	1.355	1.355	1.52	2.60	3.10
Department, material, and general expenses	.67	.85	.77	.81	.195	.185	2.06	1.45	1.44
Total manufacturing cost	1.48	2.68	2.37	2.16	1.550	1.540	3.58	4.05	4.54
Net total mill cost	4.53	5.97	5.74	5.985	10.130	5.620	9.10	10.52	10.49
Boxes, labels, bands, and packing	.60	.60	.20	.20	.82	.82	.82	.60	.60
Selling price to jobber	7.00	9.00	7.50	9.00	....	....	....	15.00	15.00
Selling price jobber to retailer	9.00	12.00	10.50	12.00	18.00	12.00	18.00	21.00	21.00
Retail selling price per garment	1.25	1.50	1.50	1.50	3.00	2.00	3.00	3.00	3.00
Net stock, per cent of net total mill cost	*Per cent.* 67.3	*Per cent.* 55.1	*Per cent.* 58.7	*Per cent.* 63.9	*Per cent.* 84.7	*Per cent.* 72.6	*Per cent.* 60.7	*Per cent.* 61.5	*Per cent.* 56.7
Labor, per cent of net total mill cost	17.9	30.7	27.9	22.6	13.4	24.1	16.7	24.7	29.6
Labor, per cent of total manufacturing cost	54.7	68.3	67.5	62.5	87.4	88.0	42.5	64.2	68.3

NOTE.—Unless otherwise noted the manufacturers' selling price is subject to a discount for cash of from 2 to 10 per cent.

LADIES' HATS, CAPS, HOODS, ETC.

The preceding table purposes to show the cost of making hats, caps, hoods, etc.

The stock used in this class of goods is roving rather than spun yarn and is usually of a superior quality, costing in the neighborhood of 90 cents per pound.

The labor, which is crocheting, is usually "let out" to institutions and done at piecework prices, ranging from $1.25 to $3 per dozen garments, depending upon the style and amount of work required in each garment.

The manufacturers consider these garments novelties rather than staple articles. The stability comes as the taste is established for this class of goods.

Toques.

[Cost per dozen.]

	Weight per finished garment.				
	1¼ ounces.	1¾ ounces.	2 ounces.	2¼ ounces.	3¾ ounces.
Net cost stock	$0.88	$1.245	$1.75	$1.60	$1.975
Conversion:					
Labor	.27	.515	.293	.33	.29
Department material and general expense	.26	.838	.583	.55	28
Total manufacturing cost	.53	1.353	.876	.88	.57
Net total mill cost	1.41	2.598	2.626	2.48	2.545
Boxes, labels, bands, and packing	.14	.287	.12	.12	.27
Selling price, to jobber	[1] 1.63	....	3.25	3.25	3.50
Selling price, jobber to retailer	1.86	4.25	4.25	4.25	4.50
Retail selling price per garment	.25	.50	.50	.50	.50
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Net stock, per cent of net total mill cost	62.4	47.9	66.5	64.5	77.6
Labor, per cent of net total mill cost	19.1	19.8	11.3	13.3	11.4
Labor, per cent of total manufacturing cost	50.9	38.1	33.8	37.5	50.9

[1] Net

NOTE.—Unless otherwise noted the manufacturers' selling price is subject to a discount for cash of from 2 to 10 per cent.

The stock used in the manufacture of the garments shown in the above table is, with the exception of that weighing 1¾ ounces in which woolen yarn is used, composed of worsted yarn ranging in price from 76 cents to $1 per pound.

Disregarding this garment weighing 1¾ ounces, on which the knitting cost was 25 cents and the sewing 20 cents, the cost of knitting the several garments varies from $0.065 to 14 cents. The winding of the yarn entering into these garments, while costing less than the knitting, varies almost as much as the cost of knitting—the range being from $0.022 to $0.09. As between the other processes such as mending and finishing there is little difference.

The general expense in the manufacture of these garments varies considerably, but this of course is due to the capacity of the mill and the production of this particular line.

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2d Session } { No. 342

WOOL AND MANUFACTURES OF WOOL

MESSAGE OF THE PRESIDENT OF THE UNITED STATES

TRANSMITTING A

REPORT OF THE TARIFF BOARD ON SCHEDULE K OF THE TARIFF LAW

IN FOUR VOLUMES

VOLUME IV (Part 5)

Wages and Efficiency of Labor and Machinery in the United States

December 21, 1911.—Referred to the Committee on Ways and Means and ordered to be printed with illustrations

WASHINGTON
1912

UNITED STATES OF AMERICA
GOVERNMENT PRINTING OFFICE

PART V. REPORT ON WAGES AND EFFICIENCY OF LABOR AND MACHINERY IN THE UNITED STATES.

THE RATES OF WAGES AND PRODUCTIVE EFFICIENCY OF LABOR IN THE WOOLEN AND WORSTED INDUSTRY OF THE UNITED STATES.

The agents of the Tariff Board made a special and detailed investigation of labor and machine efficiency in 44 woolen and worsted mills in 14 States which have, when all of their machinery is in operation, 45,500 employees, or 27.8 per cent of the employees reported by the Bureau of the Census as engaged in the industry in the United States during the year 1909.

The object of this particular investigation was to ascertain:

(1) The rates of wages and earnings of the employees in each occupation; (2) labor cost of production and productive efficiency; (3) months and years of experience in each occupation in the industry; (4) sex, country of birth, and former occupation of each employee; (5) machine production from wool scouring to spinning; (6) loom production and weaving time of each weaver; (7) weaving labor piece price per yard; (8) kind of goods woven, with number of ends, weight, size, and quality of yarns, picks per inch, and speed of loom in picks per minute.

The census of 1909 reported that in all of the woolen and worsted mills of the United States there were 72,185 looms, 1,978 worsted combs, 3,822 woolen and 2,259 worsted carding machines, 1,526,151 woolen and 1,914,454 worsted-producing spindles. In the establishments investigated by the Tariff Board in 1911 there were 18,634 looms, or 25.8 per cent of the total in the United States in 1909; 645 combs, or 32.6 per cent; 437 sets of woolen cards, or 9.7 per cent; 627 worsted cards, or 39.6 per cent; 495,902 woolen and worsted producing spindles, or 12.4 per cent of the total.

The mills investigated were in the following States: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New Jersey, New York, Pennsylvania, Ohio, Indiana, Michigan, Wisconsin, and Kentucky.

SEX, COUNTRY OF BIRTH, AND EXPERIENCE OF OPERATIVES IN THE INDUSTRY.

The agents of the Tariff Board obtained from each employee answers to certain specified questions upon individual schedule cards, of which the following is a copy:

THE WOOLEN AND WORSTED INDUSTRY.

Identification No. ——.

THE TARIFF BOARD,
Washington, D. C.

Pay roll No. and name of employee, ———.
Sex of employee (male or female), ———.
Under or over 16 years of age, ———.
Specific occupation of employee, ———.
Name of department of mill where working, ———.
Years or months employed in this mill, ———.
Years or months employed in this occupation, ———.
Years or months employed in the woolen industry, ———.
Name of former industry and occupation before beginning work in woolen mills, ———.
Country of birth of employee, ———.

The above questions were answered by 35,029 persons at work in the mills in the 14 States at the time of the agents' visits.

The following table, derived from the answers given, shows the occupation, sex, and country of birth of those employees:

TABLE 1.—*Number of employees in woolen and worsted mills in the*

Department and occupation.	Total.	Males.	Females.	Country of birth.					
				United States.		Canada.		England.	
				Males.	Females.	Males.	Females.	Males.	Females.
Supervisory and clerical:									
Overseer, foreman, etc	1,386	1,324	62	562	22	57	1	347	......
Clerk (mill)	575	439	136	156	103	7	......	49	16
Total	1,961	1,763	198	718	125	64	1	396	16
Wool-sorting department:									
Wool sorter	858	690	168	253	12	15	3	133	4
Wool mixer	31	31	......	5	......	......	......	1	......
Picker tender	172	119	53	19	26	8	......	4	7
Total	1,061	840	221	277	38	23	3	138	11
Wool-scouring department:									
Scouring-machine tender	162	137	25	23	......	6	......	15	......
Other machine tender	33	33	......	6	......	......	......	1	......
Total	195	170	25	29	......	6	......	16	......
Carding department:									
Card tender	320	258	62	79	11	21	1	8	......
Card stripper	158	158	......	44	......	10	......	7	......
Card grinder	164	158	6	82	1	6	......	25	......
Ballinghead tender	78	64	14	18	1	......	......	1	1
Other machine tender	54	51	3	17	......	2	......	1	......
Total	774	689	85	240	13	39	1	42	1
Combing department:									
Comber	399	207	192	20	48	7	1	8	......
Gill box tender	753	246	507	36	74	11	9	18	41
Other machine tender	31	11	20	2	3	......	......	......	......
Total	1,183	464	719	58	125	18	10	26	41
Drawing department: Drawing frame tender	1,603	238	1,365	51	374	7	37	7	106
Spinning department:									
Doffer	937	403	534	168	296	9	39	14	22
Spinner	1,831	758	1,073	301	453	54	74	65	40
Bobbin carrier and rail setter	1,048	805	243	365	72	52	1	66	5
Band boy	67	65	2	33	2	7	......	2	......
Roll coverer	44	37	7	16	2	4	......	4	......
Piecer	406	102	304	25	4	9	......	23	......
Back boy	38	38	......	16	......	3	......	1	......
Total	4,371	2,208	2,163	924	829	138	114	175	67
Twisting department: Twisting frame tender	1,234	67	1,167	24	392	4	49	7	43
Spooling and winding department:									
Winder	582	110	472	33	216	5	38	5	26
Spooler	1,114	58	1,056	41	621	......	71	2	48
Total	1,696	168	1,528	74	837	5	109	7	74
Dressing department:									
Dresser tender	462	343	119	210	62	25	......	47	4
Beamer	86	15	71	6	3	1	1	......	......
Total	548	358	190	216	65	26	1	47	4
Weaving department:									
Weaver	5,728	2,838	2,890	814	769	298	299	142	177
Loom fixer	602	602	......	273	......	40	......	104	......
Hander-in	171	15	156	15	107	......	18	......	4
Drawer-in	326	13	313	7	218	2	22	2	15
Total	6,827	3,468	3,359	1,109	1,094	340	339	248	196

United States, by sex and country of birth and by department and occupation.

Country of birth—Continued.													
France.		Germany.		Ireland, Scotland, and Wales.		Italy.		Norway, Sweden, and Denmark.		Eastern and Southeastern Europe.		Other countries.	
Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
7	......	117	9	121	......	36	8	6	......	54	22	17	......
......	......	117	8	15	4	9	......	4	......	74	3	8	2
7	......	234	17	136	4	45	8	10	......	128	25	25	2
......	......	26	3	44	4	59	35	4	......	134	101	22	6
......	......	......	......	......	......	1	......	......	......	7	......	17	......
1	......	4	1	4	......	27	2	......	6	36	10	16	1
1	......	30	4	48	4	87	37	4	6	177	111	55	7
......	......	3	......	19	......	22	2	......	......	47	23	2	......
......	......	1	......	......	......	15	......	......	......	8	......	2	......
......	......	4	......	19	......	37	2	......	......	55	23	4	......
......	......	6	3	6	......	55	2	......	5	64	30	19	10
......	......	......	......	6	......	41	......	......	......	34	......	16	......
1	......	3	......	5	......	9	......	......	......	21	5	6	......
......	......	......	......	3	......	25	......	......	......	13	12	4	......
......	......	5	......	1	......	7	......	......	......	15	3	3	......
1	......	14	3	21	......	137	2	......	5	147	50	48	10
......	......	1	1	......	4	72	34	......	......	93	103	6	1
......	......	......	6	8	41	78	109	......	......	76	218	19	9
......	......	......	......	......	......	6	......	......	......	3	17	......	......
......	......	1	7	8	45	156	143	......	......	172	338	25	10
......	25	4	10	3	91	83	137	......	7	28	513	55	65
1	3	......	8	4	3	139	110	......	1	22	40	46	12
6	5	66	22	31	5	151	281	3	3	68	144	13	46
8	......	13	8	32	2	194	18	3	......	69	136	8	1
1	......	......	......	......	......	11	......	......	......	11	......	......	......
......	......	3	3	1	......	2	......	......	......	7	2	......	......
13	......	3	2	......	......	6	5	......	......	21	293	2	......
......	......	2	......	......	......	4	......	......	......	12	......	......	......
24	8	87	43	68	10	507	414	6	4	210	615	69	59
......	......	2	21	4	11	3	236	1	7	22	401	......	7
......	4	1	7	3	3	25	141	......	4	21	23	17	10
......	1	1	14	1	22	11	137	......	......	......	116	2	26
......	5	2	21	4	25	36	278	......	4	21	139	19	36
......	......	12	7	27	2	5	1	4	......	6	40	7	3
......	......	1	......	2	......	3	46	......	......	1	18	1	3
......	......	13	7	29	2	8	47	4	......	7	58	8	6
174	85	265	104	115	183	160	127	17	22	531	916	322	208
10	......	91	......	41	......	13	......	......	......	24	......	6	......
......	1	......	5	......	2	......	2	......	......	......	17	......	......
1	3	1	11	......	9	......	4	......	......	......	28	......	3
185	89	357	120	156	194	173	133	17	22	555	961	328	211

TABLE 1.—*Number of employees in woolen and worsted mills in the United*

Department and occupation.	Total.	Males.	Females.	Country of birth.					
				United States.		Canada.		England.	
				Males.	Females.	Males.	Females.	Males.	Females.
Burling and mending department:									
Percher	386	316	70	152	54	32	4	72	4
Burler	1,348	16	1,332	3	683	....	59	11	52
Mender	1,435	107	1,328	87	972	1	121	4	99
Inspector or examiner	629	309	320	103	181	11	8	59	20
Specker	399	10	389	2	303	1	22	3	23
Machine tender	23	12	11	6	2	....	....	2	....
Total	4,220	770	3,450	353	2,195	45	214	151	198
Finishing department:									
Fuller	164	164	....	21	....	18	....	6	....
Gigger	113	113	....	10	....	9	....	3	....
Napper	97	97	....	13	....	5	....	4	....
Boiler, steamer, or decator	59	59	....	6	....	4	....	2	....
Washer	334	315	19	42	....	18	....	10	....
Brusher	43	43	....	14	....	4	....	1	....
Presser tender	187	187	....	47	....	9	....	22	....
Shearer	274	253	21	90	1	14	....	13	....
Folder	64	42	22	9	11	4	2	4	....
Dryer tender	262	260	2	46	2	20	....	39	....
Other machine tender	489	476	13	114	2	36	2	64	....
All other	376	281	95	112	36	11	5	32	9
Total	2,462	2,290	172	524	52	152	9	200	9
Dyeing department: Machine tender	229	197	32	28	6	4	....	22	1
General labor department:									
Helper	1,122	978	144	313	53	38	2	62	....
Laborer	1,280	1,200	80	183	10	46	1	40	4
Nonmachine worker, not specified	795	677	118	237	77	34	8	76	5
Total	3,197	2,855	342	733	140	118	11	178	9
Mechanical department:									
Beltmaker	96	87	9	23	5	....	....	4	....
Blacksmith	30	30	....	8	....	3	....	7	....
Carpenter	221	221	....	79	....	39	....	34	....
Machinist	297	297	....	115	....	14	....	62	....
Total	644	635	9	225	5	56	....	107	....
All other occupations	2,824	2,167	657	557	369	133	26	213	43
Grand total	35,029	19,347	15,682	6,140	6,659	1,178	924	1,980	819

States, by sex and country of birth and by department and occupation—Continued.

Country of birth—Continued.													
France.		Germany.		Ireland, Scotland, and Wales.		Italy.		Norway, Sweden, and Denmark.		Eastern and Southeastern Europe.		Other countries.	
Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
......	......	3	2	16	3	6	2	3	......	26	1	6	......
......	4	......	29	......	66	1	69	......	2	1	307	......	61
......	11	1	17	2	59	7	1	......	7	5	30	......	11
......	......	35	4	12	5	15	2	2	1	62	97	10	2
......	1	......	2	......	29	1	1	......	......	2	7	1	1
2	......	1	1	......	......	1	2	......	......	......	4	......	2
2	16	40	55	30	162	31	77	5	10	96	446	17	77
1	......	5	......	13	......	13	......	......	......	82	......	5	......
......	......	6	......	4	......	20	......	......	......	57	......	4	......
......	......	3	......	2	......	4	......	......	......	65	......	1	......
......	......	1	......	1	......	6	......	......	......	39	......	......	......
......	......	8	......	8	......	97	......	......	......	130	19	2	......
......	......	......	......	3	......	7	......	......	......	12	......	2	......
......	......	15	......	12	......	13	......	1	......	55	......	13	......
1	......	14	......	12	......	13	2	1	......	87	18	8	......
1	......	2	......	3	3	9	......	......	......	1	5	9	1
1	......	9	......	25	......	33	......	......	......	78	......	9	......
1	......	13	......	39	......	70	......	......	......	124	9	15	......
1	3	11	1	20	10	15	8	2	......	68	22	9	1
6	3	87	1	142	13	300	10	4	......	798	73	77	2
......	......	7	2	18	......	55	......	......	......	46	23	17	......
3	......	64	4	37	1	172	17	3	......	273	67	13	......
7	......	39	1	55	7	237	27	1	......	543	24	49	6
1	......	15	2	42	2	123	10	6	1	131	13	12	......
11	......	118	7	134	10	532	54	10	1	947	104	74	6
5	......	1	......	1	......	35	......	......	......	14	4	4	......
......	......	3	......	5	......	......	......	......	......	4	......	......	......
......	......	19	......	7	......	12	......	1	......	28	......	2	......
3	......	22	......	16	......	9	......	2	......	52	......	2	......
8	......	45	......	29	......	56	......	3	......	98	4	8	......
5	2	102	9	182	26	240	33	10	......	663	146	62	3
250	148	1,147	327	1,031	597	2,486	1,611	74	66	4,170	4,030	891	501

Of the 35,029 wage-earners shown in the table 1,386, or 3.9 per cent, were engaged in supervisory work, being overseers, foremen, second hands, third hands, and section hands. Over three-fourths (26,403, or 75.4 per cent) of the total number were engaged in work that is directly contributory to the production of woolen and worsted goods, such as wool sorting and scouring, combing, drawing, spinning, twisting, spooling, dressing, weaving, burling, sewing, finishing, and dyeing.

The remaining 7,240 employees, forming 20.7 per cent of the total number, were engaged in the general work that is necessary about any mill. They represent a great variety of occupations ranging from the simple work of scrubbing and sweeping to the skilled work of a machinist. Over a thousand (1,122) helpers are classified as belonging to the general labor department, although their work may be contributory to a degree to the woolen and worsted products. Their duties, however, require no special knowledge of the processes of the woolen industry.

Almost one-sixth of the mill operatives were weavers, this class numbering 5,728 and forming 16.4 per cent of the total number of operatives. The other occupations with more than a thousand workers were those of spinners (1,831), drawing-frame tenders (1,603), menders (1,435), burlers (1,348), laborers (1,280), twisting-frame tenders (1,234), helpers (1,122), spoolers (1,114), and bobbin carriers and rail setters (1,048).

The number of specific occupations reported was much greater in the larger and more highly organized mills than in the smaller mills. This of course was to be expected, for division of labor in its highest form is possible only in the larger mills. In the smaller mills it is necessary for one operative to do work of various kinds in order that his time may be utilized to the best advantage and that the work may be advanced most satisfactorily. Thus in many instances one overseer had two or three departments under his care.

SEX.

Of the wage-earners employed in the mills at the time the agents visited the mills, 19,347, or 55.2 per cent, were males and 15,682, or 44.8 per cent, were females.

Males were reported for each of the 58 occupations shown separately in this table but naturally there are a number of occupations for which no women were reported. Both sexes were reported for 44 specified occupations. In 16 of these the female wage-earners outnumbered the male. In the 16 occupations there were 13,277 females and 5,305 males, the proportions being 71.5 per cent and 28.5 per cent, respectively. The occupations in which women predominated are burler, mender, hander-in, drawer-in, specker, spooler, twisting-frame tender, drawing-frame tender, beamer, winder, piecer, and gill-box tender.

The difference in the number of male and female weavers is not great, the number of males being 2,838 and the number of females, 2,890.

COUNTRY OF BIRTH.

The following summary table presents the number and per cent distribution by country of birth of the wage-earners shown in the larger table:

TABLE 2.—*Number and percentage of employees in woolen and worsted mills in the United States, by sex and by country of birth.*

Country of birth.	Total.	Male.	Female.	Per cent distribution.		
				Total.	Male.	Female.
Total	35,029	19,347	15,682	100.0	100.0	100.0
United States	12,799	6,140	6,659	36.5	31.7	42.5
Canada	2,102	1,178	924	6.0	6.1	5.9
England	2,799	1,980	819	8.0	10.2	5.2
France	398	250	148	1.1	1.3	0.9
Germany	1,474	1,147	327	4.2	5.9	2.1
Ireland, Scotland, and Wales	1,628	1,031	597	4.7	5.3	3.8
Italy	4,097	2,486	1,611	11.7	12.9	10.3
Norway, Sweden, and Denmark	140	74	66	0.4	0.4	0.4
Eastern and southeastern Europe	8,200	4,170	4,030	23.4	21.6	25.7
Other countries	1,392	891	501	4.0	4.6	3.2

In the establishments investigated, 12,799, or 36.5 per cent of the total number of persons employed, were born in the United States and 22,230, or 63.5 per cent, were foreign born. Of the 22,230 foreign born, 12,297 persons, or 35.1 per cent of all of the employees in the mills, were natives of Italy and the countries of eastern and southeastern Europe. Great Britain and Ireland are represented by 4,427, or 12.7 per cent, of the wage earners; Canada, by 2,102, or 6.0 per cent; and Germany by 1,474, or 4.2 per cent. No other country is represented by so large a number of operatives.

More females than males were reported for the United States and for eastern and southeastern Europe, while the countries contributing more largely to the number of male operatives are Germany, Great Britain and Ireland, France, Italy, and Canada.

Some interesting facts with regard to the nationalities represented in various kinds of work are brought out in the larger table (Table 1) given above. The native born predominated in the occupations that demand especial skill or ability. The natives of the British Isles and Germany were found chiefly in the occupations requiring considerable skill, while Italy and the countries of eastern and southeastern Europe are represented largely in the occupations requiring comparatively little or no experience or skill, although many wage-earners from those countries have attained to a great degree of efficiency.

The supervisory class was made up largely of native-born and British employees. The native born formed 42.1 per cent of the total number, although the proportion of native born in the total number of wage-earners in the specified mills was only 36.5 per cent. The English overseers, foremen, etc., numbered 347, or one-fourth of the total number, while the English, Irish, Scotch, and Welsh in this supervisory class together constituted over one-third (468, or 33.8 per cent) of the total.

The largest proportion of native born is shown for the menders. Of 1,435 menders, 1,059, or 73.8 per cent, were born in the United States. The work of the menders is practically weaving by hand, and requires much care and skill and plays an important part in the perfection of the product of the mills.

The majority of the dresser tenders, spoolers, and burlers also were native born, as shown by the following summary table based on Table 1. This summary presents data for those occupations which require experience and upon which efficiency in manufacturing woolen and worsted goods depends to a great degree.

TABLE 3.—*Number and percentage of native and foreign born employees in woolen and worsted mills in the United States, for occupations which require experience and upon which efficiency in manufacturing woolen and worsted goods mainly depends.*

Occupation.	Aggregate.	Males.	Females.	Country of birth.					
				United States.			Italy and eastern and southeastern Europe.		
				Total.	Males.	Females.	Total.	Males.	Females.
Wool sorter	858	690	168	265	253	12	329	193	136
Wool carder	320	258	62	90	79	11	151	119	32
Card stripper	158	158	....	44	44	....	75	75	....
Comb and gill box tender	1,152	453	699	178	56	122	783	319	464
Drawing-frame tender	1.603	238	1,365	425	51	374	761	111	650
Spinner	1,831	758	1,073	754	301	453	644	219	425
Twisting-frame tender	1,234	67	1,167	416	24	392	662	25	637
Spooler and winder	1,696	168	1,528	911	74	837	474	57	417
Dresser tender	462	343	119	272	210	62	52	11	41
Weaver	5,728	2,838	2,890	1,583	814	769	1,734	691	1,043
Loom fixer	602	602	....	273	273	....	37	37	....
Burler	1,348	16	1,332	686	3	683	378	2	376
Mender	1,435	107	1,328	1,059	87	972	43	12	31
Finishing-machine tender	2,462	2,290	172	576	524	52	1,181	1,098	83
Overseer and foreman	1,386	1,324	62	584	562	22	120	90	30

Occupation.	Country of birth.						Per cent of total.			
	Other foreign countries.			Total, foreign countries.			Born in United States.	Born in foreign countries.		
	Total.	Males.	Females.	Total.	Males.	Females.		Total.	Italy and eastern and southeastern Europe.	Other foreign countries.
Wool sorter	264	244	20	593	437	156	30.9	69.1	38.3	30.8
Wool carder	79	60	19	230	179	51	28.1	71.9	47.2	24.7
Card stripper	39	39	....	114	114	....	27.8	72.2	47.5	24.7
Comb and gill box tender	191	78	113	974	397	577	15.5	84.5	68.0	16.5
Drawing-frame tender	417	76	341	1,178	187	991	26.5	73.5	47.5	26.0
Spinner	433	238	195	1,077	457	620	41.2	58.8	35.2	23.6
Twisting-frame tender	156	18	138	818	43	775	33.7	66.3	53.7	12.6
Spooler and winder	311	37	274	785	94	691	53.7	46.3	28.0	18.3
Dresser tender	138	122	16	190	133	57	58.9	41.1	11.3	29.8
Weaver	2,411	1,333	1,078	4,145	2,024	2,121	27.6	72.4	30.3	42.1
Loom fixer	292	292	....	329	329	....	45.3	54.7	6.2	48.5
Burler	284	11	273	662	13	649	50.9	49.1	28.0	21.1
Mender	333	8	325	376	20	356	73.8	26.2	3.0	23.2
Finishing-machine tender	705	668	37	1,886	1,766	120	23.4	76.6	48.0	28.6
Overseer and foreman	682	672	10	802	762	40	42.1	57.9	8.7	49.2

Table 3 brings out the fact that more than two-thirds of the operatives in seven of the important occupations were foreign born These occupations and the percentages of foreign born for them are as follows: Comb and gill-box tender, 84.5; finishing-machine tender, 76.6; drawing-frame tender, 73.5; weaver, 72.4; card stripper, 72.2; wool carder, 71.9; and wool sorter, 69.1.

The natives of Italy and eastern and southeastern Europe were more numerous than the native born in combing, gill-box tending, drawing-frame tending, card stripping, wool carding, wool sorting, twisting-frame tending, finishing-machine tending, and weaving.

Many nationalities are represented among the weavers and the spinners. In the case of the weavers only a little over one-fourth (1,583, or 27.6 per cent) were native born, and a slightly larger proportion (2,411, or 30.3 per cent) were from eastern and southeastern Europe. Canada stood out prominently with 597, or 10.4 per cent, of all the weavers.

In the case of spinners the proportion of native born was greater, those born in the United States forming 41.2 per cent of the total number. Over one-third (35.2 per cent) were born in Italy and countries in eastern and southeastern Europe. The remaining 23.6 per cent were born in Canada, Great Britain and Ireland, Germany, France, and other countries.

The following summary shows the distribution of native and foreign born in the various departments:

TABLE 4.—*Employees in woolen and worsted mills in the United States, by department and by country of birth.*

Department	Total.	Country of birth.							
		United States.		Foreign countries.					
		Number.	Per cent.	Total.		Italy and eastern and southeastern Europe.		Other foreign countries.	
				Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Total	35,029	12,799	36.5	22,230	63.5	12,297	35.1	9,933	28.4
Sorting	1,061	315	29.7	746	70.3	412	38.8	334	31.5
Scouring	195	29	14.9	166	85.1	117	60.0	49	25.1
Carding	774	253	32.7	521	67.3	336	43.4	185	23.9
Combing	1,183	183	15.5	1,000	84.5	809	68.4	191	16.1
Drawing	1,603	425	26.5	1,178	73.5	761	47.5	417	26.0
Spinning	4,371	1,753	40.1	2,618	59.9	1,746	39.9	872	20.0
Twisting	1,234	416	33.7	818	66.3	662	53.7	156	12.6
Spooling and winding	1,696	911	53.7	785	46.3	474	28.0	311	18.3
Dressing	548	281	51.3	267	48.7	120	21.9	147	26.8
Weaving	6,827	2,203	32.3	4,624	67.7	1,822	26.7	2,802	41.0
Burling and mending	4,220	2,548	60.4	1,672	39.6	650	15.4	1,022	24.2
Finishing	2,462	576	23.4	1,886	76.6	1,181	48.0	705	28.6
Dyeing	229	34	14.8	195	85.2	124	54.2	71	31.0
General labor	3,197	873	27.3	2,324	72.7	1,637	51.2	687	21.5
Mechanical	644	230	35.7	414	64.3	131	20.3	283	44.0
Other occupations	2,824	926	32.8	1,898	67.2	1,082	38.3	816	28.9
Supervisory and clerical	1,961	843	43.0	1,118	57.0	206	10.5	912	46.5

The only departments in which the number of operatives born in the United States was greater than the number born in foreign countries are the spooling and winding, dressing, and burling and mending departments. Of these, the burling and mending department had the largest proportion of native-born operatives. Of the 4,220 employees in the burling and mending department, 2,548, or 60.4 per cent, were born in the United States.

The departments with the largest proportions of foreigners are the scouring, combing, and dyeing departments. In each of these departments over four-fifths of the operatives were from foreign countries. Operatives from Italy and eastern and southeastern Europe predominated in each of these departments.

EXPERIENCE OF OPERATIVES.

The question of previous experience is an important one. The following table is a summary of the facts brought out by the answers to the query as to the former industry and occupation before beginning work in woolen and worsted mills:

TABLE 5.—*Number and percentage of employees in woolen and worsted mills in the United States, by sex and by former industry.*

Former industry.	Total.	Male.	Female.	Per cent distribution.		
				Total.	Male.	Female.
Total	35,029	19,347	15,682	100.0	100.0	100.0
Not gainful, in school, and at home	17,835	7,678	10,157	50.9	39.7	64.8
Agriculture, forestry, and animal husbandry	5,252	3,139	2,113	15.0	16.2	13.5
Mining	268	266	2	0.8	1.4	(1)
Transportation and trade	4,447	3,971	476	12.7	20.5	3.0
Public service	119	115	4	0.3	0.6	(1)
Professional service	47	35	12	0.1	0.2	0.1
Domestic and personal service	1,213	194	1,019	3.5	1.0	6.5
Other textile industry than woolen industry	2,967	1,681	1,286	8.5	8.7	8.2
Other manufacturing and mechanical pursuit	2,881	2,268	613	8.2	11.7	3.9

[1] Less than one-tenth of 1 per cent.

Of the 35,029 operatives, 29,181, or 83.3 per cent, had no experience in any manufacturing or mechanical industry before going to work in the woolen and worsted mills.

Wage earners to the number of 2,967, or 8.5 per cent of the total number, had been previously employed in textile industries other than the woolen industry, and 2,881, or 8.2 per cent, had been employed in other manufacturing or mechanical industries.

Of the 29,181 persons who had no "previous experience" before entering the woolen mills, 17,835, or 50.9 per cent of the total number, had been at school or at home, and 11,346, or 32.4 per cent of the total number, had been employed in agriculture, transportation, trade, domestic service, and other nonmanufacturing occupations.

The classification of industries used by the Bureau of the Census in the presentation of the data for occupations for the enumeration of 1910 has been followed in the preparation of the tables showing former industry.

Of the 19,347 male employees, about two-fifths (7,678, or 39.7 per cent) had not been engaged in any gainful occupation before entering the woolen and worsted mills; one-fifth (3,971, or 20.5 per cent) had been engaged in transportation and trade; and one-fifth (3,949, or 20.4 per cent) had had experience in manufacturing and mechanical pursuits other than the woolen industry.

A larger proportion of the female operatives (10,157, or 64.8 per cent of the 15,682 women and girls engaged in the work of the mills) were entirely new to the industrial world, having entered the mills directly from the home or the school. Over 2,000 (2,113, or 13.5 per cent) had been engaged in agricultural pursuits. The number of women who had had some previous experience in manufacturing and mechanical pursuits was 1,899, or 12.1 per cent of all the female wage earners in these mills.

The number of operatives with previous experience in other textile industries than the woolen industry and in other manufacturing and mechanical pursuits was 5,848, and of these, 2,212, or 37.8 per cent, were born in the United States, and 3,636, or 62.2 per cent, were of foreign birth. This is shown in the following summary table:

TABLE 6.—*Number of employees in woolen and worsted mills in the United States, by country of birth and by former industry.*

Country of birth.	Total number.	Per cent of total number.	Former industry.							
			At school or home.		Agriculture, trade, and domestic and other service.		Other textile industry than woolen.		Other manufacturing and mechanical pursuit.	
			Number.	Per cent of total number.	Number.	Per cent of total number.	Number.	Per cent of total number.	Number.	Per cent of total number.
Total	35,029	100.0	17,835	50.9	11,346	32.4	2,967	8.5	2,881	8.2
United States	12,799	36.5	8,733	24.9	1,854	5.3	1,068	3.0	1,144	3.3
Foreign countries	22,230	63.5	9,102	26.0	9,492	27.1	1,809	5.4	1,737	5.0
Italy and eastern and southeastern Europe	12,297	35.1	3,843	11.0	7,069	20.2	526	1.5	859	2.5
Other foreign countries	9,933	28.4	5,259	15.0	2,423	6.9	1,373	3.9	878	2.5

Of the 11,346 operatives who had been employed in agriculture, trade, and domestic and other service before entering the woolen and worsted mills, 9,492 were born in foreign countries, and of these foreign-born operatives 7,069 came from Italy and eastern and southeastern Europe.

Table 7 shows the distribution of the operatives by country of birth and by former industry.

Table 7.—*Number and percentage of employees in woolen and worsted mills in the United States, by country of birth and by former industry.*

Country of birth.	Total.	Former industry.								
		Not gainful, in school and at home.	Agriculture, forestry, and animal husbandry.	Mining.	Transportation and trade.	Public service.	Professional service.	Domestic and personal service.	Other textile industry than woolen industry.	Other manufacturing and mechanical pursuit.
Total	35,029	17,835	5,252	268	4,447	119	47	1,213	2,967	2,881
United States	12,799	8,733	358	24	1,144	37	17	274	1,068	1,144
Canada	2,102	1,062	212	1	221	5	2	44	363	192
England	2,799	1,637	42	48	345	15	2	31	447	232
France	398	294	4	1	25	1	......	10	43	20
Germany	1,474	845	108	4	196	6	1	40	141	133
Ireland, Scotland, and Wales	1,628	754	118	19	238	14	6	60	239	180
Italy	4,097	1,903	610	26	1,033	21	10	119	105	270
Norway, Sweden, and Denmark	140	65	18	1	23	2	1	12	3	15
Eastern and southeastern Europe	8,200	1,940	3.522	133	1,047	16	6	526	421	589
Other countries	1,392	602	260	11	175	2	2	97	137	106

PER CENT.

Country of birth.	Total.	Not gainful, in school and at home.	Agriculture, forestry, and animal husbandry.	Mining.	Transportation and trade.	Public service.	Professional service.	Domestic and personal service.	Other textile industry than woolen industry.	Other manufacturing and mechanical pursuit.
Total	100.0	50.9	15.0	0.8	12.7	0.3	0.1	3.5	8.5	8.2
United States	100.0	68.2	2.8	0.2	8.9	0.3	0.1	2.2	8.4	8.9
Canada	100.0	50.5	10.1	0.1	10.5	0.2	0.1	2.1	17.3	9.1
England	100.0	58.5	1.5	1.7	12.3	0.5	0.1	1.1	16.0	8.3
France	100.0	73.8	1.0	0.3	6.3	0.3	......	2.5	10.8	5.0
Germany	100.0	57.3	7.3	0.3	13.3	0.4	0.1	2.7	9.6	9.0
Ireland, Scotland, and Wales	100.0	46.3	7.2	1.2	14.6	0.9	0.4	3.7	14.7	11.0
Italy	100.0	46.5	14.9	0.6	25.2	0.5	0.2	2.9	2.6	6.6
Norway, Sweden, and Denmark	100.0	46.4	12.9	0.7	16.4	1.4	0.7	8.6	2.2	10.7
Eastern and southeastern Europe	100.0	23.7	42.9	1.6	12.8	0.2	0.1	6.4	5.1	7.2
Other countries	100.0	43.3	18.7	0.8	12.6	0.1	0.1	7.0	9.8	7.6

The countries ranking above the average in the proportion of operatives who had previous experience in industries where they may have had training that would be helpful in their work in the woolen industry are Canada, Great Britain, Germany, the United States, and France.

Almost one-half of the operatives from eastern and southeastern Europe had been engaged in agricultural pursuits. One-fourth of the Italians had been engaged in trade and transportation, and over one-eighth in agriculture.

Similar data for males and females are presented in Table 8.

TABLE 8.—*Number of employees in woolen and worsted mills in the United States, by sex and country of birth and by former industry.*

Sex and country of birth.	Total.	Former industry.								
		Not gainful in school and at home.	Agriculture, forestry, and animal husbandry.	Mining.	Transportation and trade.	Public service.	Professional service.	Domestic and personal service.	Other textile industry than woolen industry.	Other manufacturing and mechanical pursuit.
Total	35,029	17,835	5,252	268	4,447	119	47	1,213	2,967	2,881
Male	19,347	7,678	3,139	266	3,971	115	35	194	1,681	2,268
Female	15,682	10,157	2,113	2	476	4	12	1,019	1,286	613
United States	12,799	8,733	358	24	1,144	37	17	274	1,068	1,144
Male	6,140	3,497	336	24	916	33	8	69	512	745
Female	6,659	5,236	22	......	228	4	9	205	556	399
Canada	2,102	1,062	212	1	221	5	2	44	363	192
Male	1,178	373	209	1	207	5	2	8	208	165
Female	924	689	3	......	14	......	......	36	155	27
England	2,799	1,637	42	48	345	15	2	31	447	232
Male	1,980	1,023	42	48	322	15	2	12	298	218
Female	819	614	....	......	23	......	......	19	149	14
France	398	294	4	1	25	1	......	10	43	20
Male	250	179	4	1	18	1	......	4	25	18
Female	148	115	....	......	7	......	......	6	18	2
Germany	1,474	845	108	4	196	6	1	40	141	133
Male	1,147	604	105	4	189	6	......	7	108	124
Female	327	241	3	......	7	......	1	33	33	9
Ireland, Scotland and Wales	1,628	754	118	19	238	14	6	60	239	180
Male	1,031	341	118	18	224	14	5	9	135	167
Female	597	413	....	1	14	......	1	51	104	13
Italy	4,097	1,903	610	26	1,033	21	10	119	105	270
Male	2,486	670	479	26	939	21	9	38	70	234
Female	1,611	1,233	131	......	94	......	1	81	35	36
Norway, Sweden, and Denmark	140	65	18	1	23	2	1	12	3	15
Male	74	17	17	1	20	2	1	......	2	14
Female	66	48	1	......	3	......	......	12	1	1
Eastern and southeastern Europe	8,200	1,940	3,522	133	1,047	16	6	526	421	589
Male	4,170	693	1,589	132	978	16	6	32	235	489
Female	4,030	1,247	1,933	1	69	......	......	494	186	100
Other countries	1,392	602	260	11	175	2	2	97	137	106
Male	891	281	240	11	158	2	2	15	88	94
Female	501	321	20	......	17	......	......	82	49	12

From a study of the tables showing the industries in which the operatives were engaged before they commenced work in the woolen industry, it is evident that only a small proportion of the operatives entered the woolen and worsted mills with any experience that would serve to make them skilled in the work they were undertaking.

Naturally some months or even years would be required to make them efficient and valuable workers in the woolen industry.

LENGTH OF SERVICE OF OPERATIVES IN THE WOOLEN INDUSTRY.

Many of the operatives working in the mills at the time they were visited by the agents had been engaged in the industry for a short period only. The length of time the operatives had been employed in the industry is shown in the following summary table:

TABLE 9.—*Number and percentage of employees in woolen and worsted mills in the United States, by sex and by time employed in industry.*

Time employed in industry.	Total.	Male.	Female.	Per cent distribution.		
				Total.	Male.	Female.
Total	35,029	19,347	15,682	100.0	100.0	100.0
Less than 3 months	2,019	1,097	922	5.8	5.7	5.9
3 to 5 months	1,692	914	778	4.8	4.7	5.0
6 to 11 months	2,110	1,019	1,091	6.0	5.3	6.9
1 year	3,799	1,771	2,028	10.9	9.2	12.9
2 years	3,877	1,771	2,106	11.1	9.2	13.4
3 years	2,710	1,191	1,519	7.7	6.1	9.7
4 years	2,664	1,272	1,392	7.6	6.6	8.9
5 to 9 years	6,926	3,679	3,247	19.8	19.0	20.7
10 to 19 years	4,919	3,184	1,735	14.0	16.4	11.1
20 to 29 years	2,537	1,901	636	7.2	9.8	4.0
30 to 39 years	1,213	1,026	187	3.5	5.3	1.2
40 years and over	563	522	41	1.6	2.7	0.3

About one-sixth of all the employees—5,821, or 16.6 per cent—had been engaged in the work of the woolen industry less than 1 year. Of these, 2,019, or 5.8 per cent of the total, had been in the industry less than 3 months, and 3,711, or 10.6 per cent of all employees, had been in the industry less than 6 months.

Over one-half of the operatives—18,871 persons, or 53.9 per cent—had been employed in the industry less than 5 years; about one-fifth—6,926 persons, or 19.8 per cent—for 5 years and over but less than 10 years; and more than one-fourth—9,232, or 26.3 per cent—for 10 years or more. Of those in the industry 10 years and over, 4,313, or 12.3 per cent of the total number, had been working for 20 years and more, 1,776 for at least 30 years, and 563 for at least 40 years.

The number of persons of long service indicates that the mills have some experienced workers.

The degree of permanency in the industry is considerable in view of the fact that the proportion of young men and women employed in the industry is large. Naturally long periods of service could not be expected in the case of persons who have only lately reached the age when they are permitted to go to work.

Moreover many of the operatives are of foreign birth and have been in this country for only a short time, and consequently could not be in the industry for a long period unless they came from the countries having woolen and worsted mills. Undoubtedly some experienced operatives have come from other countries and entered the mills here, but their number is not large.

On the whole, however, the mills are at a disadvantage because of the large proportion of new and inefficient workers.

Much of the inefficiency is due to the fact that the industry draws largely from the foreign born, who have difficulty in understanding the instructions given them and in many cases lack the aptitude needed to make them efficient in the work.

Moreover, the large number of young men and women in the industry enter the mills without any experience in the work they are to do, and time is necessary for their training.

In many cases the mills are compelled to rely upon these classes of workers and keep them in spite of their inefficiency. This is true especially in the places that are remote from the industrial centers. In the industrial centers there are more workers to choose from, and yet, on the other hand, there is apt to be more shifting from one mill to another. This shifting may be caused by better conditions, by higher wages, by greater convenience in location, or by the presence of friends in a certain mill, one or more of these causes making one mill more desirable than another to the operative. Other reasons for shifting may be inefficiency, combativeness, or other fault in the operative which makes his presence in the mill undesirable.

The following table shows the number of employees grouped according to the time they had been employed in the mills in which they were working when the agents visited those mills:

TABLE 10.—*Number and percentage of employees in woolen and worsted mills in the United States, by sex and by time employed in mill.*

Time employed in mill.	Total.	Male.	Female.	Per cent distribution.		
				Total.	Male.	Female.
Total	35,029	19,347	15,682	100.0	100.0	100.0
Less than 3 months	3,659	2,031	1,628	10.4	10.5	10.4
3 to 5 months	2,865	1,629	1,236	8.2	8.4	7.9
6 to 11 months	3,198	1,642	1,556	9.1	8.5	9.9
1 year	4,861	2,417	2,444	13.9	12.5	15.6
2 years	4,524	2,236	2,288	12.9	11.5	14.6
3 years	2,939	1,431	1,508	8.4	7.4	9.6
4 years	2,652	1,404	1,248	7.6	7.3	8.0
5 to 9 years	5,782	3,347	2,435	16.5	17.3	15.5
10 to 19 years	2,949	1,989	960	8.4	10.3	6.1
20 to 29 years	1,196	895	301	3.4	4.6	1.9
30 to 39 years	332	269	63	1.0	1.4	0.4
40 years and over	72	57	15	0.2	0.3	0.1

Of the 35,029 operatives, 9,722, or 27.7 per cent, had been employed less than one year in the mills from which they were reported, and 3,659 of these, or 10.4 per cent of the total number of employees, had been working in their respective mills for less than three months, while 6,524, or 18.6 per cent of the total number, had been working there less than six months.

Seven-tenths—24,698, or 70.5 per cent—of the employees had been at work in the mills in which the agents of the Tariff Board found them less than 5 years; 5,782, or 16.5 per cent, had been in the mills 5 years and over but less than 10 years; and 4,549, or 13 per cent, had been in the mills 10 years and over.

A comparison of the time of employment in the mill with the length of service in the industry for all of the operatives in the mills visited is shown in the following table:

TABLE 11.—*Number, per cent of total, and per cent distribution of employees in woolen and worsted mills in the United States, by time employed in mill and by time employed in industry.*

Time employed in mill.	Total.	Time employed in industry.			
		Less than 1 year.	1 to 4 years.	5 to 9 years.	10 years and over.
Total	35,029	5,821	13.050	6,926	9.232
Less than 1 year	9,722	5,821	2,005	863	1,033
1 to 4 years	14,976		11,045	1.926	2,005
5 to 9 years	5,782			4,137	1,645
10 years and over	4,549				4,549

PER CENT OF TOTAL.

Time employed in mill.	Total.	Less than 1 year.	1 to 4 years.	5 to 9 years.	10 years and over.
Total	100.0	16.6	37.3	19.8	26.3
Less than 1 year	100.0	59.9	20.6	8.9	10.6
1 to 4 years	100.0		73.7	12.9	13.4
5 to 9 years	100.0			71.5	28.5
10 years and over	100.0				100.0

PER CENT DISTRIBUTION.

Time employed in mill.	Total.	Less than 1 year.	1 to 4 years.	5 to 9 years.	10 years and over.
Total	100.0	100.0	100.0	100.0	100.0
Less than 1 year	27.7	100.0	15.4	12.5	11.2
1 to 4 years	42.8		84.6	27.8	21.7
5 to 9 years	16.5			59.7	17.8
10 years and over	13.0				49.3

Since many of the operatives had been employed in other woolen and worsted mills before entering the mills in which they were working at the time the agents visited those mills, the proportion for the shorter periods of time are greater in the case of time in the mill than in the case of time in the industry.

Of the 9,722 wage earners working less than one year in the mill, 5,821 were new to the industry, while 3,901 had worked in other mills. Among the latter, 1,033 had worked in the industry for a period of 10 years or more, 863 from 5 to 9 years, and 2,005 from 1 to 4 years.

Table 12 shows the facts in greater detail.

Table 12.—*Number of employees in woolen and worsted mills in the United States, by time employed in mill and by time employed in industry.*

Time employed in mill.	Total.	Time employed in industry.											
		Less than 3 months.	3 to 5 months.	6 to 11 months.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 to 19 years.	20 to 29 years.	30 to 39 years.	40 years and over.
Total	35,029	2,019	1,692	2,110	3,799	3,877	2,710	2,664	6,926	4,919	2,537	1,213	563
Less than 3 months	3,659	**2,019**	134	141	246	181	117	135	302	225	103	38	18
3 to 5 months	2,865	......	**1,558**	128	205	164	124	95	278	185	77	38	13
6 to 11 months	3,198	......	......	**1,841**	290	199	133	116	283	181	96	41	18
1 year	4,861	......	......	......	**3,058**	436	234	196	437	295	138	50	17
2 years	4,524	......	......	......	......	**2,897**	316	241	501	341	139	75	14
3 years	2,939	......	......	......	......	......	**1,786**	241	447	253	142	54	16
4 years	2,652	......	......	......	......	......	......	**1,640**	541	279	113	58	21
5 to 9 years	5,782	......	......	......	......	......	......	......	**4,137**	944	427	191	83
10 to 19 years	2,949	......	......	......	......	......	......	......	......	**2,216**	409	215	109
20 to 29 years	1,196	......	......	......	......	......	......	......	......	......	**893**	195	108
30 to 39 years	332	......	......	......	......	......	......	......	......	......	......	**258**	74
40 years and over	72	......	......	......	......	......	......	......	......	......	......	......	**72**

PER CENT.

Time employed in mill.	Total.	Less than 3 months.	3 to 5 months.	6 to 11 months.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 to 19 years.	20 to 29 years.	30 to 39 years.	40 years and over.
Total	100.0	5.8	4.8	6.0	10.9	11.1	7.7	7.6	19.8	14.0	7.2	3.5	1.6
Less than 3 months	100.0	**55.2**	3.7	3.9	6.7	4.9	3.2	3.7	8.3	6.1	2.8	1.0	0.5
3 to 5 months	100.0	......	**54.4**	4.5	7.2	5.7	4.3	3.3	9.7	6.4	2.7	1.3	0.5
6 to 11 months	100.0	......	......	**57.6**	9.1	6.2	4.2	3.6	8.8	5.6	3.0	1.3	0.6
1 year	100.0	......	......	......	**62.9**	9.0	4.8	4.0	9.0	6.1	2.8	1.0	0.4
2 years	100.0	......	......	......	......	**64.0**	7.0	5.3	11.1	7.5	3.1	1.7	0.3
3 years	100.0	......	......	......	......	......	**60.8**	8.2	15.2	8.6	4.8	1.8	0.6
4 years	100.0	......	......	......	......	......	......	**61.8**	20.4	10.5	4.3	2.2	0.8
5 to 9 years	100.0	......	......	......	......	......	......	......	**71.6**	16.3	7.4	3.3	1.4
10 to 19 years	100.0	......	......	......	......	......	......	......	......	**75.1**	13.9	7.3	3.7
20 to 29 years	100.0	......	......	......	......	......	......	......	......	......	**74.7**	16.3	9.0
30 to 39 years	100.0	......	......	......	......	......	......	......	......	......	......	**77.7**	22.3
40 years and over	100.0	......	......	......	......	......	......	......	......	......	......	......	**100.0**

In the greater proportion of cases the length of service in the mill is identical with the length of service in the industry. In the table the figures in heavy type indicate the numbers of persons who had been employed in the same mill during their entire service in the industry. The aggregate of these numbers is 22,375. Consequently of the 35,029 persons engaged in work in the woolen industry, 22,375, or 63.9 per cent, had worked only in the mills from which they were reported respectively, and 12,654, or 36.1 per cent, had worked in other mills before entering the mills in which they were employed at the time the agents visited the mills.

While in most of the mills visited there seems to be no system of advancement from one class of work to another, numerous changes in occupation take place.

The following summary table shows the distribution of the operatives according to the time they had been employed in the occupations in which they were engaged when the mills were canvassed:

TABLE 13.—*Number and percentage of employees in woolen and worsted mills in the United States, by sex and by time employed in occupation.*

Time employed in occupation.	Total.	Male.	Female.	Per cent distribution.		
				Total.	Male.	Female.
Total	35,029	19,347	15,682	100.0	100.0	100.0
Less than 3 months	3,764	2,172	1,592	10.7	11.2	10.1
3 to 5 months	2,643	1,502	1,141	7.5	7.8	7.3
6 to 11 months	3,016	1,528	1,488	8.6	7.9	9.5
1 year	4,535	2,212	2,323	13.0	11.4	14.8
2 years	4,105	1,877	2,228	11.7	9.7	14.2
3 years	2,656	1,259	1,397	7.6	6.5	8.9
4 years	2,396	1,185	1,211	6.8	6.1	7.7
5 to 9 years	5,586	3,130	2,456	16.0	16.2	15.7
10 to 19 years	3,646	2,418	1,228	10.4	12.5	7.8
20 to 29 years	1,807	1,327	480	5.2	6.9	3.1
30 to 39 years	641	531	110	1.8	2.7	0.7
40 years and over	234	206	28	0.7	1.1	0.2

Over one-fourth—9,423, or 26.8 per cent—of the operatives had been at work in their respective occupations less than 1 year. Of these, 3,764, or 10.7 per cent of the total number, had been in their occupations less than 3 months, and 6,407, or 18.2 per cent of all employees, had been working at the same kind of work less than 6 months.

About two-thirds of all the operatives—23,115, or 65.9 per cent—had been in the same occupations less than 5 years; 5,586, or 16 per cent, had been at the same work from 5 to 9 years; and 6,328, or 18.1 per cent, had remained at the same kind of work for 10 years or more. Of the last-named class, 875 persons had been in one occupation for 30 years and over, and 234 persons for a period of at least 40 years.

The length of service in an occupation is more significant when it is considered in connection with length of service in the mill and length of service in the industry. The comparison of time in mill and time in occupation is shown in the following table:

TABLE 14.—*Number, per cent of total, and per cent distribution of employees in woolen and worsted mills in the United States, by time employed in mill and by time employed in occupation.*

Time employed in mill.	Total.	Time employed in occupation.			
		Less than 1 year.	1 to 4 years.	5 to 9 years.	10 years and over.
Total	35,029	9,423	13,692	5,586	6,328
Less than 1 year	9,722	7,560	876	529	757
1 to 4 years	14,976	1,475	11,286	977	1,238
5 to 9 years	5,782	269	1,120	3,458	935
10 years and over	4,549	119	410	622	3,398
PER CENT OF TOTAL.					
Total	100.0	26.8	39.1	16.0	18.1
Less than 1 year	100.0	77.8	9.0	5.4	7.8
1 to 4 years	100.0	9.8	75.4	6.5	8.3
5 to 9 years	100.0	4.6	19.4	59.8	16.2
10 years and over	100.0	2.6	9.0	13.7	74.7
PER CENT DISTRIBUTION.					
Total	100.0	100.0	100.0	100.0	100.0
Less than 1 year	27.7	80.2	6.4	9.5	11.9
1 to 4 years	42.8	15.6	82.4	17.5	19.6
5 to 9 years	16.5	2.9	8.2	61.9	14.8
10 years and over	13.0	1.3	3.0	11.1	53.7

Of the 9,722 persons employed for less than a year in the mills in which they were working at the time the mills were visited by the agents of the board, 7,560, or 77.8 per cent, had been engaged for less than a year in the occupation at which they were then working, while the remainder—2,162, or 22.2 per cent—had been engaged in the same occupations in other textile mills before entering the mills from which they were reported. Of those having previous experience in the occupation over one-third—757, or 7.8 per cent of the total number in the mill less than 1 year—had been doing the same kind of work for 10 years or more.

Of the 14,976 employees working in the mill over one year but less than 5 years, 2,215, or 14.8 per cent, had had previous experience in the same occupation in other mills, while 1,475, or 9.8 per cent, had been engaged in other work in the same mill before beginning work in the specified occupation.

The following table shows these data in greater detail:

TABLE 15.—*Number of employees in woolen and worsted mills in the United States, by time employed in mill and by time employed in occupation.*

Time employed in mill.	Total.	Time employed in occupation.											
		Less than 3 months.	3 to 5 months.	6 to 11 months.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 to 19 years.	20 to 29 years.	30 to 39 years.	40 years and over.
Total	35,029	3,764	2,643	3,016	4,535	4.105	2,656	2,396	5,586	3,646	1,807	641	234
Less than 3 months	3,659	**2,749**	58	45	107	86	78	75	177	156	87	29	12
3 to 5 months	2,865	200	**1,984**	55	63	75	44	48	173	128	65	27	3
6 to 11 months	3,198	166	111	**2,192**	110	81	62	47	179	144	66	31	9
1 year	4,861	223	162	239	**3,326**	160	89	93	240	193	102	30	4
2 years	4,524	143	104	176	337	**2,902**	129	90	290	214	94	87	8
3 years	2,939	83	56	108	186	253	**1,643**	96	223	162	86	34	9
4 years	2,652	63	49	69	114	173	195	**1,500**	224	152	80	23	10
5 to 9 years	5,782	103	86	80	212	263	303	342	**3,458**	517	286	106	26
10 to 19 years	2,949	22	27	30	52	83	84	70	503	**1,699**	228	102	49
20 to 29 years	1,196	9	5	16	25	25	20	25	93	227	**632**	76	43
30 to 39 years	332	3	1	5	3	1	9	7	22	45	74	**184**	28
40 years and over	72	......	......	1	......	3	......	3	4	9	7	12	**33**

PER CENT

Time employed in mill.	Total.	Less than 3 months.	3 to 5 months.	6 to 11 months.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 to 19 years.	20 to 29 years.	30 to 39 years.	40 years and over.
Total	100.0	10.7	7.5	8.6	13.0	11.7	7.6	6.8	16.0	10.4	5.2	1.8	0.7
Less than 3 months	100.0	**75.1**	1.6	1.2	2.9	2.4	2.1	2.1	4.8	4.3	2.4	0.8	0.3
3 to 5 months	100.0	7.0	**69.2**	1.9	2.2	2.6	1.5	1.7	6.0	4.5	2.3	0.9	0.1
6 to 11 months	100.0	5.2	3.5	**68.5**	3.4	2.5	1.9	1.5	5.6	4.5	2.1	1.0	0.3
1 year	100.0	4.6	3.3	4.9	**68.4**	3.3	1.9	1.9	4.9	4.0	2.1	0.6	0.1
2 years	100.0	3.2	2.3	3.9	7.4	**64.1**	2.9	2.0	6 4	4.7	2.1	0.8	0.2
3 years	100.0	2.8	1.9	3.7	6.3	8.6	**55.9**	3.3	7.6	5.5	2.9	1.2	0.3
4 years	100.0	2.4	1.8	2.6	4.3	6.5	7.4	**56.6**	8.4	5.7	3.0	0.9	0.4
5 to 9 years	100.0	1.8	1.5	1.4	3.7	4.6	5.2	5.9	**59.8**	8.9	4.9	1.8	0.5
10 to 19 years	100.0	0.7	0.9	1.0	1.8	2.8	2.8	2.4	17.1	**57.6**	7.7	3.5	1.7
20 to 29 years	100.0	0.7	0.4	1.3	2.1	2.1	1.7	2.1	7.8	19.0	**52.8**	6.4	3.6
30 to 39 years	100.0	0.9	0.3	1.5	0.9	0.3	2.7	2.1	6.6	13.6	22 3	**40.4**	8.4
40 years and over	100.0	......	......	1.4	......	4.2	......	4.2	5.5	12.5	9.7	16.7	**45.8**

In the greater proportion of cases the length of service in the mill is identical with the length of service in the occupation. In the table the figures in heavy type indicate the numbers of persons who had been employed in the same occupation during the entire time of their service in the mills in which they were working. The aggregate of these numbers is 22,252. Consequently of the total number of employees, 22,252, or 63.5 per cent, had been in the same occupation during their entire service in the mills in which they were enumerated. Of the 3,764 persons employed in the occupation less than three months, 2,749 had been in the mill less than three months and 1,015 had been in the mill for a longer time—200 for from three to five months, 166 from six to eleven months, 223 for a year, etc. Of the 2,643 persons employed in the occupation from three to five months, 1,984 had been in the mill and in the occupation that length of time; 58 had been in the occupation for that period but had been employed in some other mills before entering the mills from which they were reported respectively; and the remaining 601 had been in the mills from which they were reported for longer periods than the period of their service in the occupation, having been engaged in other work in the mills for a part of the time. When the numbers for each period of employment are considered in this way it is seen that over one-sixth—6,124, or 17.5 per cent—had been employed in other occupations during a portion of their service in the mills in which they were working and about one-fifth—6,653, or 19 per cent—had been engaged in similar work in other textile mills before entering the mills from which they were reported.

The following table shows the operatives, distributed according to time in the industry and time in the occupation:

TABLE 16.—*Number, per cent of total, and per cent distribution of employees in woolen and worsted mills in the United States, by time employed in industry and by time employed in occupation.*

Time employed in industry.	Total.	Time employed in occupation.			
		Less than 1 year.	1 to 4 years.	5 to 9 years.	10 years and over.
Total	35,029	9,423	13,692	5,586	6,328
Less than 1 year	5,821	5,651	71	38	61
1 to 4 years	13,050	2,456	10,257	147	190
5 to 9 years	6,926	755	2,029	3,950	192
10 years and over	9,232	561	1,335	1,451	5,885
PER CENT OF TOTAL.					
Total	100.0	26.8	39.1	16.0	18.1
Less than 1 year	100.0	97.1	1.2	0.7	1.0
1 to 4 years	100.0	18.8	78.6	1.1	1.5
5 to 9 years	100.0	10.9	29.3	57.0	2.8
10 years and over	100.0	6.1	14.5	15.7	63.7
PER CENT DISTRIBUTION.					
Total	100.0	100.0	100.0	100.0	100.0
Less than 1 year	16.6	60.0	0.5	0.7	1.0
1 to 4 years	37.3	26.1	74.9	2.6	3.0
5 to 9 years	19.8	8.0	14.8	70.7	3.0
10 years and over	26.3	5.9	9.8	26.0	93.0

Of the 5,821 wage earners in the industry less than one year, 5,651, or 97.1 per cent, had been engaged less than a year in the specified occupation in the woolen industry, and 170, or 2.9 per cent, had been engaged in the same occupation in some other textile industry.

Of the 13,050 operatives who had worked in the industry from one to four years, 10,257, or 78.6 per cent, had been in the same occupation in the woolen industry for that length of time; 2,456, or 18.8 per cent, had been in some other occupation in the same mill for a portion of the time; and 337, or 2.6 per cent, had been engaged in the occupation in some other textile industry before entering the service of the woolen and worsted mills.

Three-fifths—5,651, or 60 per cent—of the operatives in one occupation less than a year had been in the industry less than a year also. The remainder, 3,772, or 40 per cent, had been in the industry for longer periods, being engaged in other work for a portion of the time.

More detailed statistics are given in the following table:

TABLE 17.—*Number of employees in woolen and worsted mills in the United States, by time employed in industry and by time employed in occupation.*

Time employed in industry.	Total.	Time employed in occupation.											
		Less than 3 months.	3 to 5 months.	6 to 11 months.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 to 19 years.	20 to 29 years.	30 to 39 years.	40 years and over.
Total	35,029	3,764	2,643	3,016	4,535	4,105	2,656	2,396	5,586	3,646	1,807	641	234
Less than 3 months	2,019	**1,942**	14	5	6	7	11	5	10	13	4	......	2
3 to 5 months	1,692	182	**1,452**	9	9	4	3	3	11	12	4	3	......
6 to 11 months	2,110	221	182	**1,644**	5	7	9	2	17	10	7	5	1
1 year	3,799	315	253	339	**2,761**	18	6	12	36	36	13	9	1
2 years	3,877	263	202	281	516	**2,515**	7	10	38	20	16	5	4
3 years	2,710	145	125	171	296	359	**1,510**	18	39	26	11	9	1
4 years	2,664	147	94	121	198	302	286	**1,448**	34	25	12	2	......
5 to 9 years	6,926	319	201	235	434	525	486	584	**3,950**	107	54	25	6
10 to 19 years	4,919	144	78	115	171	239	215	215	1,067	**2,548**	85	31	11
20 to 29 years	2,537	57	28	58	90	94	79	61	259	582	**1,188**	31	15
30 to 39 years	1,213	18	9	25	34	27	27	28	86	198	341	**404**	16
40 years and over	563	11	5	13	15	8	17	15	39	69	77	117	**177**

PER CENT.

Time employed in industry.	Total.	Less than 3 months.	3 to 5 months.	6 to 11 months.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 to 19 years.	20 to 29 years.	30 to 39 years.	40 years and over.
Total	100.0	10.7	7.5	8.6	13.0	11.7	7.6	6.8	16.0	10.4	5.2	1.8	0.7
Less than 3 months	100.0	**96.2**	.7	.3	.3	.3	.5	.3	.5	.6	.2	......	.1
3 to 5 months	100.0	10.8	**85.8**	.5	.5	.2	.2	.2	.7	.7	.2	.2	......
6 to 11 months	100.0	10.5	8.6	**77.9**	.2	.3	.4	.1	.8	.5	.3	.3	.1
1 year	100.0	8.3	6.7	8.9	**72.7**	.5	.2	.3	.9	1.0	.3	.2	(1)
2 years	100.0	6.8	5.2	7.2	13.3	**64.9**	.2	.3	1.0	.5	.4	.1	.1
3 years	100.0	5.4	4.6	6.3	10.9	13.3	**55.7**	.7	1.4	1.0	.4	.3	(1)
4 years	100.0	5.5	3.5	4.6	7.4	11.3	10.7	**54.2**	1.3	.9	.5	.1	......
5 to 9 years	100.0	4.6	2.9	3.4	6.3	7.6	7.0	8.4	**57.0**	1.5	.8	.4	.1
10 to 19 years	100.0	2.9	1.6	2.3	3.5	4.9	4.4	4.4	21.7	**51.8**	1.7	.6	.2
20 to 29 years	100.0	2.2	1.1	2.3	3.6	3.7	3.1	2.4	10.2	23.0	**46.6**	1.2	.6
30 to 39 years	100.0	1.5	.8	2.1	2.8	2.2	2.2	2.3	7.1	16.3	28.1	**33.3**	1.3
40 years and over	100.0	2.0	.9	2.3	2.7	1.4	3.0	2.7	6.8	12.2	13.7	20.8	**31.4**

[1] Less than one-tenth of 1 per cent.

Over three-fifths—21,529, the aggregate of the figures in heavy type, or 61.5 per cent—of the persons engaged in the woolen industry worked in the same occupation during the entire time of their work in the mills, and over one-third—12,513, or 35.7 per cent—had started in some other occupation than the one in which they were engaged at the time they were reported. The remainder—987, or 2.8 per cent—had been engaged in similar work in some other textile industry, and consequently were more or less experienced in the line of work before they entered the woolen and worsted mills. For example, some of these employees had been weavers in cotton or silk mills before becoming weavers in woolen mills.

Table 5 shows that 2,967 operatives had been engaged in other textile industries before they entered into the work of the woolen and worsted mills. Of that number, only 987 persons, or about one-third of the operatives, had had training in the kind of work they were doing in the woolen and worsted mills.

COUNTRY OF BIRTH AND LENGTH OF SERVICE.

A study of the length of service in the industry in connection with the nationality of the operatives reveals some interesting facts. The following summary tables show the proportions of native and foreign born distributed according to the duration of their employment in the industry, in the mill, and in the occupation in which they were employed at the time the mills were canvassed:

TABLE 18.—*Number of employees in woolen and worsted mills in the United States, by country of birth and by time in industry.*

Country of birth.	Total number.	Per cent of total number.	Time employed in industry.							
			Less than 1 year.		1 to 4 years.		5 to 9 years.		10 years and over.	
			Number.	Per cent of total number.	Number.	Per cent of total number.	Number.	Per cent of total number.	Number.	Per cent of total number.
Total	35,029	100.0	5,821	16.6	13,050	37.3	6,926	19.8	9,232	26.3
United States	12,799	36.5	2,190	6.2	4,337	12.4	2,650	7.6	3,622	10.3
Foreign countries	22,230	63.5	3,631	10.4	8,713	24.9	4,276	12.2	5,610	16.0
Italy and eastern and southeastern Europe	12,297	35.1	2,690	7.7	6,304	18.0	2,281	6.5	1,022	2.9
Other foreign countries	9,933	28.4	941	2.7	2,409	6.8	1,995	5.7	4,588	13.1

TABLE 19.—*Number of employees in woolen and worsted mills in the United States, by country of birth and by time in mill.*

Country of birth.	Total number.	Per cent of total number.	Time employed in mill.							
			Less than 1 year.		1 to 4 years.		5 to 9 years.		10 years and over.	
			Number.	Per cent of total number.	Number.	Per cent of total number.	Number.	Per cent of total number.	Number.	Per cent of total number.
Total	35,029	100.0	9,722	27.7	14.976	42.8	5.782	16.5	4.549	13.0
United States	12,799	36.5	3,429	9.8	4,968	14.2	2,328	6.6	2,074	5.9
Foreign countries	22,230	63.5	6,293	17.9	10,008	28.6	3.454	9.9	2,475	7.1
Italy and eastern and southeastern Europe	12,297	35.1	4,117	11.7	6,335	18.1	1,384	3.9	461	1.3
Other foreign countries	9,933	28.4	2,176	6.2	3,673	10.5	2,070	5.9	2,014	5.8

TABLE 20.—*Number of employees in woolen and worsted mills in the United States, by country of birth and by time in occupation.*

Country of birth.	Total number.	Per cent of total number.	Time employed in occupation.							
			Less than 1 year.		1 to 4 years.		5 to 9 years.		10 years and over.	
			Number.	Per cent of total number.	Number.	Per cent of total number.	Number.	Per cent of total number.	Number.	Per cent of total number.
Total	35,029	100.0	9,423	26.8	13.692	39.1	5.586	16.0	6,328	18.1
United States	12.799	36.5	3,486	10.0	4,633	13.2	2,216	6.3	2,464	7.0
Foreign countries	22.230	63.5	5,937	16.8	9,059	25.9	3,370	9.6	3,864	11.1
Italy and eastern and southeastern Europe	12,297	35.1	4,104	11.6	6,049	17.3	1,510	4.3	634	1.9
Other foreign countries	9,933	28.4	1,833	5.2	3,010	8.6	1,860	5.3	3,230	9.2

Over one-third—12,297, or 35.1 per cent—of the operatives in the woolen industry were natives of Italy and eastern and southeastern Europe. These people are among the later immigrants as a rule. The proportions of these operatives in the longer periods of service are comparatively small and the proportions in the woolen industry for the shorter periods—less than 1 year, 1 year, 2 years, 3 years, and 4 years—are comparatively large, the latter being larger than the corresponding proportions for any other country. These facts are shown in Table 21 presenting the number and percentage of operatives of the leading nationalities by the duration of their employment.

TABLE 21.—*Number and percentage of employees in woolen and worsted mills in the United States, by country of birth and by time employed in industry.*

Country of birth.	Total.	Time employed in industry.						
		Less than 1 year.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 years and over.
Total	35,029	5,821	3,799	3,877	2,710	2,664	6,926	9,232
United States	12,799	2,190	1,292	1,216	998	831	2,650	3,622
Canada	2,102	250	183	178	133	137	533	688
England	2,799	211	125	151	134	120	451	1,607
France	398	23	17	24	16	21	82	215
Germany	1,474	110	100	87	66	53	217	841
Ireland, Scotland, and Wales	1,628	113	67	73	69	66	268	972
Italy	4,097	943	537	546	358	518	816	379
Norway, Sweden, and Denmark	140	16	6	8	11	7	25	67
Eastern and southeastern Europe	8,200	1,747	1,341	1,420	809	775	1,465	643
Other countries	1,392	218	131	174	116	136	419	198
PER CENT.								
Total	100.0	16.6	10.9	11.1	7.7	7.6	19.8	26.3
United States	100.0	17.1	10.1	9.5	7.8	6.5	20.7	28.3
Canada	100.0	11.9	8.7	8.5	6.3	6.5	25.4	32.7
England	100.0	7.5	4.5	5.4	4.8	4.3	16.1	57.4
France	100.0	5.8	4.3	6.0	4.0	5.3	20.6	54.0
Germany	100.0	7.5	6.8	5.9	4.5	3.6	14.7	57.0
Ireland, Scotland, and Wales	100.0	6.9	4.1	4.5	4.2	4.1	16.5	59.7
Italy	100.0	23.0	13.1	13.3	8.7	12.7	19.9	9.3
Norway, Sweden, and Denmark	100.0	11.4	4.3	5.7	7.8	5.0	17.9	47.9
Eastern and southeastern Europe	100.0	21.3	16.3	17.3	9.9	9.5	17.9	7.8
Other countries	100.0	15.6	9.4	12.5	8.3	9.8	30.1	14.3

Over one-half of all the employees who were natives of Great Britain, Ireland, Germany, and France had been engaged in the woolen and worsted industry for at least 10 years. Over one-half of the Canadians and Scandinavians and almost one-half of the native born had served at least 5 years.

TABLE 22.—*Number and percentage of employees in woolen and worsted mills in the United States, by country of birth and by time employed in mill.*

Country of birth.	Total.	Time employed in mill.						
		Less than 1 year.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 years and over.
Total	35,029	9,722	4,861	4,524	2,939	2,652	5,782	4,549
United States	12,799	3,429	1,582	1,447	1,092	847	2,328	2,074
Canada	2,102	478	229	231	191	127	498	348
England	2,799	607	291	279	205	234	562	621
France	398	115	59	66	43	39	63	13
Germany	1,474	261	188	162	106	89	282	386
Ireland, Scotland, and Wales	1,628	264	143	143	101	116	329	532
Italy	4,097	1,464	614	575	349	433	510	152
Norway, Sweden, and Denmark	140	25	12	10	10	11	28	44
Eastern and southeastern Europe	8,200	2,653	1,557	1,435	728	644	874	309
Other countries	1,392	426	186	176	114	112	308	70
PER CENT.								
Total	100.0	27.7	13.9	12.9	8.4	7.6	16.5	13.0
United States	100.0	26.8	12.4	11.3	8.5	6.6	18.2	16.2
Canada	100.0	22.7	10.9	11.0	9.1	6.0	23.7	16.6
England	100.0	21.7	10.4	10.0	7.3	8.3	20.1	22.2
France	100.0	28.9	14.8	16.6	10.8	9.8	15.8	3.3
Germany	100.0	17.7	12.8	11.0	7.2	6.0	19.1	26.2
Ireland, Scotland, and Wales	100.0	16.2	8.8	8.8	6.2	7.1	20.2	32.7
Italy	100.0	35.7	15.0	14.0	8.5	10.6	12.5	3.7
Norway, Sweden, and Denmark	100.0	17.9	8.6	7.1	7.1	7.9	20.0	31.4
Eastern and southeastern Europe	100.0	32.3	19.0	17.5	8.9	7.8	10.7	3.8
Other countries	100.0	30.6	13.4	12.6	8.2	8.1	22.1	5.0

The proportions in their respective mills for at least 10 years were larger than the average in the case of Ireland, Scotland, and Wales; Norway, Sweden, and Denmark; Germany; England; Canada; and the United States.

TABLE 23.—*Number and percentage of employees in woolen and worsted mills in the United States, by country of birth and by time employed in occupation.*

Country of birth.	Total.	Time employed in occupation.						
		Less than 1 year.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 years and over.
Total	35,029	9,423	4,535	4,105	2,656	2,396	5,586	6,328
United States	12,799	3,486	1,514	1,359	962	798	2,216	2,464
Canada	2,102	443	229	192	127	123	469	519
England	2,799	535	235	205	166	160	448	1,050
France	398	46	23	23	26	17	65	198
Germany	1,474	187	168	124	95	63	265	572
Ireland, Scotland, and Wales	1,628	242	116	117	99	106	244	704
Italy	4,097	1,562	590	525	354	374	487	205
Norway, Sweden, and Denmark	140	24	12	8	13	8	24	51
Eastern and southeastern Europe	8,200	2,542	1,492	1,389	696	630	1,023	429
Other countries	1,392	356	156	163	119	117	345	136

PER CENT.

Country of birth.	Total.	Less than 1 year.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 years and over.
Total	100.0	26.8	13.0	11.7	7.6	6.8	16.0	18.1
United States	100.0	27.3	11.8	10.6	7.5	6.2	17.3	19.3
Canada	100.0	21.1	10.9	9.1	6.0	5.9	22.3	24.7
England	100.0	19.1	8.4	7.3	6.0	5.7	16.0	37.5
France	100.0	11.6	5.8	5.8	6.5	4.3	16.3	49.7
Germany	100.0	12.7	11.4	8.4	6.4	4.3	18.0	38.8
Ireland, Scotland, and Wales	100.0	14.9	7.1	7.2	6.1	6.5	15.0	43.2
Italy	100.0	38.1	14.4	12.8	8.7	9.1	11.9	5.0
Norway, Sweden, and Denmark	100.0	17.2	8.5	5.7	9.3	5.7	17.2	36.4
Eastern and southeastern Europe	100.0	31.0	18.2	16.9	8.5	7.7	12.5	5.2
Other countries	100.0	25.6	11.2	11.7	8.5	8.4	24.8	9.8

Almost one-half—198, or 49.7 per cent—of the French operatives had been engaged in the same occupation for at least 10 years. More than one-third of the natives of Great Britain and Ireland, of the Germans, and of the Scandinavians had remained in their respective occupations for 10 years or longer.

On the other hand, over one-third of the Italians and almost one-third of the operatives from eastern and southeastern Europe had been engaged in their respective occupations for less than a year.

SEX AND LENGTH OF SERVICE.

The following table is a summary showing the number and percentage of males and of females employed in the specified mills, by the duration of their employment in the mill, in the occupation, and in the industry:

TABLE 24.—*Number, per cent distribution, and per cent of total for employees in woolen and worsted mills in the United States, by sex and by time in mill, time in occupation, and time in industry.*

Period.	By time in mill.			By time in occupation.			By time in industry.		
	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.
Total	35,029	19,347	15,682	35,029	19,347	15,682	35,029	19,347	15,682
Less than 1 year	9,722	5,302	4,420	9,423	5,202	4,221	5,821	3,030	2,791
1 to 4 years	14,976	7,488	7,488	13,692	6,533	7,159	13,050	6,005	7,045
5 to 9 years	5,782	3,347	2,435	5,586	3,130	2,456	6,926	3,679	3,247
10 years and over	4,549	3,210	1,339	6,328	4,482	1,846	9,232	6,633	2,599
PER CENT DISTRIBUTION.									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 1 year	27.7	27.4	28.2	26.8	26.9	26.9	16.6	15.7	17.8
1 to 4 years	42.8	38.7	47.8	39.1	33.8	45.6	37.3	31.0	44.9
5 to 9 years	16.5	17.3	15.5	16.0	16.2	15.7	19.8	19.0	20.7
10 years and over	13.0	16.6	8.5	18.1	23.1	11.8	26.3	34.3	16.6
PER CENT OF TOTAL.									
Total	100.0	55.2	44.8	100.0	55.2	44.8	100.0	55.2	44.8
Less than 1 year	100.0	52.1	47.9	100.0	54.5	45.5	100.0	55.2	44.8
1 to 4 years	100.0	46.0	54.0	100.0	50.0	50.0	100.0	47.7	52.3
5 to 9 years	100.0	53.1	46.9	100.0	57.9	42.1	100.0	56.0	44.0
10 years and over	100.0	71.8	28.2	100.0	70.6	29.4	100.0	70.8	29.2

The proportion of females was greater in the shorter periods of employment in the mill, in the occupation, and in the industry. For the period of less than five years the percentages for females were 76 for time in the mill, 72.5 for time in the occupation, and 62.7 for time in the industry, while the corresponding percentages for males were 66.1, 60.7, and 46.7.

In the case of employment in the occupation for a period less than a year the proportion of females was equal to that of males (26.9 per cent).

The proportion of males was about twice as large for the period of service lasting 10 years or more, the percentages being 16.6 for time in the mill, 23.1 for time in the occupation, and 34.3 for time in the industry, while the corresponding percentages for females were 8.5 11.8, and 16.6. The total number of operatives serving for at least 10 years was 4,549 for time in the mill, 6,328 for time in the occupation, and 9,232 for time in the industry.

The fact that the females usually leave the industry when they marry may account in part for the difference in the length of their service as compared with that of the males.

Another cause contributing to this difference may be the fact that frequently the men of the family immigrated to this country before the women came, and consequently had an earlier start in the industry.

The following tables show for each sex the more detailed data concerning the nationality of operatives and the length of their service in the industry, in the mill, and in the occupation in which they were employed at the time the agents of the board visited the mills in which they were working:

TABLE 25.—*Number of employees in woolen and worsted mills in the United States, by sex and country of birth and by time employed in industry.*

Sex and country of birth.	Total.	Time employed in industry.						
		Less than 1 year.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 years and over.
Total	35,029	5,821	3,799	3,877	2,710	2,664	6,926	9,232
Male	19,347	3,030	1,771	1,771	1,191	1,272	3,679	6,633
Female	15,682	2,791	2,028	2,106	1,519	1,392	3,247	2,599
United States	12,799	2,190	1,292	1,216	998	831	2,650	3,622
Male	6,140	1,039	539	493	347	299	1,087	2,336
Female	6,659	1,151	753	723	651	532	1,563	1,286
Canada	2,102	250	183	178	133	137	533	688
Male	1,178	131	101	87	59	68	268	464
Female	924	119	82	91	74	69	265	224
England	2,799	211	125	151	134	120	451	1,607
Male	1,980	129	69	85	81	63	286	1,267
Female	819	82	56	66	53	57	165	340
France	398	23	17	24	16	21	82	215
Male	250	16	7	11	9	7	38	162
Female	148	7	10	13	7	14	44	53
Germany	1,474	110	100	87	66	53	217	841
Male	1,147	63	67	54	41	36	150	736
Female	327	47	33	33	25	17	67	105
Ireland, Scotland, and Wales	1,628	113	67	73	69	66	268	972
Male	1,031	73	40	48	36	41	148	645
Female	597	40	27	25	33	25	120	327
Italy	4,097	943	537	546	358	518	816	379
Male	2,486	594	305	307	173	264	527	316
Female	1,611	349	232	239	185	254	289	63
Norway, Sweden, and Denmark	140	16	6	8	11	7	25	67
Male	74	5	1	4	2	3	13	46
Female	66	11	5	4	9	4	12	21
Eastern and southeastern Europe	8,200	1,747	1,341	1,420	809	775	1,465	643
Male	4,170	834	550	580	372	411	910	513
Female	4,030	913	791	840	437	364	555	130
Other countries	1,392	218	131	174	116	136	419	198
Male	891	146	92	102	71	80	252	148
Female	501	72	39	72	45	56	167	50

TABLE 26.—*Number of employees in woolen and worsted mills in the United States, by sex and country of birth and by time employed in mill.*

Sex and country of birth.	Total.	Time employed in mill.						
		Less than 1 year.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 years and over.
Total	35,029	9,722	4,861	4,524	2,939	2,652	5.782	4,549
Male	19,347	5,302	2,417	2,236	1,431	1,404	3,347	3,210
Female	15,682	4,420	2.444	2,288	1.508	1,248	2.435	1.339
United States	12,799	3,429	1,582	1,447	1,092	847	2,328	2,074
Male	6,140	1,725	698	603	432	346	1,059	1,277
Female	6.659	1.704	884	844	660	501	1,209	797
Canada	2,102	478	229	231	191	127	498	348
Male	1,178	262	123	122	92	70	277	232
Female	924	216	106	109	99	57	221	116
England	2,799	607	291	279	205	234	562	621
Male	1,980	374	192	181	144	153	411	525
Female	819	233	99	98	61	81	151	96
France	398	115	50	66	43	39	63	13
Male	250	77	38	39	28	22	35	11
Female	148	38	21	27	15	17	28	2
Germany	1,474	261	188	162	106	89	282	386
Male	1,147	177	135	118	72	72	229	344
Female	327	84	53	44	34	17	53	42
Ireland, Scotland, and Wales	1,628	264	143	143	101	116	329	532
Male	1,031	155	90	89	63	73	199	362
Female	597	109	53	54	38	43	130	170
Italy	4,097	1,464	614	575	349	433	510	152
Male	2,486	941	341	328	173	236	336	131
Female	1,611	523	273	247	176	197	174	21
Norway, Sweden, and Denmark	140	25	12	10	10	11	28	44
Male	74	7	4	5	3	6	16	33
Female	66	18	8	5	7	5	12	11
Eastern and southeastern Europe	8,200	2,653	1,557	1,435	728	644	874	309
Male	4,170	1,301	670	646	361	365	585	242
Female	4,030	1,352	887	789	367	279	289	67
Other countries	1,392	426	186	176	114	112	308	70
Male	891	283	126	105	63	61	200	53
Female	501	143	60	71	51	51	108	17

TABLE 27.—*Number of employees in woolen and worsted mills in the United States, by sex and country of birth and by time employed in occupation.*

Sex and country of birth.	Total.	Time employed in occupation.						
		Less than 1 year.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 years and over.
Total	35,029	9,423	4,535	4,105	2,656	2,396	5,586	6,328
Male	19,347	5,202	2,212	1,877	1,259	1,185	3,130	4,482
Female	15,682	4,221	2,323	2,228	1,397	1,211	2,456	1,846
United States	12,799	3,486	1,514	1,359	962	798	2,216	2,464
Male	6,140	1,723	643	517	367	300	1,008	1,582
Female	6,659	1,763	871	842	595	498	1,208	882
Canada	2,102	443	229	192	127	123	469	519
Male	1,178	250	105	86	54	61	267	355
Female	924	193	124	106	73	62	202	164
England	2,799	535	235	205	166	160	448	1,050
Male	1,980	360	157	126	121	103	308	805
Female	819	175	78	79	45	57	140	245
France	398	46	23	23	26	17	65	198
Male	250	28	12	11	11	6	32	150
Female	148	18	11	12	15	11	33	48
Germany	1,474	187	168	124	95	63	265	572
Male	1,147	121	117	90	67	47	205	500
Female	327	66	51	34	28	16	60	72
Ireland, Scotland, and Wales	1,628	242	116	117	99	106	244	704
Male	1,031	150	84	76	58	65	152	446
Female	597	92	32	41	41	41	92	258
Italy	4,097	1,562	590	525	354	374	487	205
Male	2,486	981	343	300	175	196	319	172
Female	1,611	581	247	225	179	178	168	33
Norway, Sweden, and Denmark	140	24	12	8	13	8	24	51
Male	74	9	3	4	6	3	15	34
Female	66	15	9	4	7	5	9	17
Eastern and southeastern Europe	8,200	2,542	1,492	1,389	695	630	1,023	429
Male	4,170	1,331	632	573	331	342	624	337
Female	4,030	1,211	860	816	364	288	399	92
Other countries	1,392	356	156	163	119	117	345	136
Male	891	249	116	94	69	62	200	101
Female	501	107	40	69	50	55	145	35

TABLE 28.—*Number of employees in woolen and worsted mills in the United States, by sex and time employed in mill and by time employed in industry.*

Sex and time employed in mill.	Total.	Time employed in industry.											
		Less than 3 months.	3 to 5 months.	6 to 11 months.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 to 19 years.	20 to 29 years.	30 to 39 years.	40 years and over.
Total	35,029	2,019	1,692	2,110	3,799	3,877	2,710	2,664	6,926	4,919	2,537	1,213	563
Male	19,347	1,097	914	1,019	1,771	1,771	1,191	1,272	3,679	3,184	1,901	1,026	522
Female	15,682	922	778	1,091	2,028	2,106	1,519	1,392	3,247	1,735	636	187	41
Less than 3 months.	3,659	2,019	134	141	246	181	117	135	302	225	108	38	18
Male	2,031	1,097	73	79	124	93	61	70	165	145	80	31	13
Female	1,628	922	61	62	122	88	56	65	137	80	23	7	5
3 to 5 months	2,865	......	1,558	128	205	164	124	95	278	185	77	38	13
Male	1,629	......	841	63	119	82	73	53	149	138	62	36	13
Female	1,236	......	717	65	86	82	51	42	129	47	15	2	......
6 to 11 months	3,198	......	......	1,841	290	199	133	116	283	181	96	41	18
Male	1,642	......	......	877	142	101	63	60	151	117	77	37	17
Female	1,556	......	......	964	148	98	70	56	132	64	19	4	1
1 year	4,861	......	......	......	3,058	436	234	196	437	295	138	50	17
Male	2,417	......	......	......	1,386	198	115	91	251	198	111	50	17
Female	2,444	......	......	......	1,672	238	119	105	186	97	27	......	......
2 years	4,524	......	......	......	......	2,897	316	241	501	341	139	75	14
Male	2,236	......	......	......	......	1,297	133	115	277	224	107	69	14
Female	2,288	......	......	......	......	1,600	183	126	224	117	32	6	......
3 years	2,939	......	......	......	......	......	1,786	241	447	253	142	54	16
Male	1,431	......	......	......	......	......	746	97	232	184	108	49	15
Female	1,508	......	......	......	......	......	1,040	144	215	69	34	5	1
4 years	2,652	......	......	......	......	......	......	1,640	541	279	113	58	21
Male	1,404	......	......	......	......	......	......	786	285	182	84	48	19
Female	1,248	......	......	......	......	......	......	854	256	97	29	10	2
5 to 9 years	5,782	......	......	......	......	......	......	......	4,137	944	427	191	83
Male	3,347	......	......	......	......	......	......	......	2,169	627	324	151	76
Female	2,435	......	......	......	......	......	......	......	1,968	317	103	40	7
10 to 19 years	2,949	......	......	......	......	......	......	......	......	2,216	409	215	109
Male	1,989	......	......	......	......	......	......	......	......	1,369	333	186	101
Female	960	......	......	......	......	......	......	......	......	847	76	29	8
20 to 29 years	1,196	......	......	......	......	......	......	......	......	......	893	195	108
Male	895	......	......	......	......	......	......	......	......	......	615	173	107
Female	301	......	......	......	......	......	......	......	......	......	278	22	1
30 to 39 years	332	......	......	......	......	......	......	......	......	......	......	258	74
Male	269	......	......	......	......	......	......	......	......	......	......	196	73
Female	63	......	......	......	......	......	......	......	......	......	......	62	1
40 years and over	72	......	......	......	......	......	......	......	......	......	......	......	72
Male	57	......	......	......	......	......	......	......	......	......	......	......	57
Female	15	......	......	......	......	......	......	......	......	......	......	......	15

TABLE 29.—*Number of employees in woolen and worsted mills in the United States, by sex and time employed in mill and by time employed in occupation.*

Sex and time employed in mill.	Total.	Time employed in occupation.											
		Less than 3 months.	3 to 5 months.	6 to 11 months.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 to 19 years.	20 to 29 years.	30 to 39 years.	40 years and over.
Total.........	35,029	3,764	2,643	3,016	4,535	4,105	2,656	2,396	5,586	3,646	1,807	641	234
Male......	19,347	2,172	1,502	1,528	2,212	1,877	1,259	1,185	3,130	2,418	1,327	531	206
Female...	15,682	1,592	1,141	1,488	2,323	2,228	1,397	1,211	2,456	1,228	480	110	28
Less than 3 months.	3,659	2,749	58	45	107	86	78	75	177	156	87	29	12
Male...........	2,031	1,529	22	26	44	41	40	40	92	100	66	23	8
Female..........	1,628	1,220	36	19	63	45	38	35	85	56	21	6	4
3 to 5 months.......	2,865	200	1,984	55	63	75	44	48	173	128	65	27	3
Male...........	1,629	123	1,094	35	30	30	28	20	88	98	54	26	3
Female..........	1,236	77	890	20	33	45	16	28	85	30	11	1	......
6 to 11 months......	3,198	166	111	2,192	110	81	62	47	179	144	66	31	9
Male...........	1,642	100	74	1,048	40	38	30	21	91	109	53	29	9
Female..........	1,556	66	37	1,144	70	43	32	26	88	35	13	2	......
1 year..............	4,861	223	162	239	3,326	160	89	93	240	193	102	30	4
Male...........	2,417	128	90	131	1,541	57	33	44	134	136	91	28	4
Female..........	2,444	95	72	108	1,785	103	56	49	106	57	11	2	......
2 years.............	4,524	143	104	176	337	2,902	129	90	290	214	94	37	8
Male...........	2,236	96	67	95	189	1,265	49	38	180	144	71	34	8
Female..........	2,288	47	37	81	148	1,637	80	52	110	70	23	3	......
3 years.............	2,939	83	56	108	186	253	1,643	96	223	162	86	34	9
Male...........	1,431	55	34	58	99	110	701	26	120	119	71	29	9
Female..........	1,508	28	22	50	87	143	942	70	103	43	15	5	......
4 years.............	2,652	63	49	69	114	173	195	1,500	224	152	80	23	10
Male...........	1,404	46	34	39	76	92	99	729	104	103	56	17	9
Female..........	1,248	17	15	30	38	81	96	771	120	49	24	6	1
5 to 9 years.........	5,782	103	86	80	212	263	303	342	3,458	517	286	106	26
Male...........	3,347	72	62	56	130	160	187	171	1,870	334	195	89	21
Female..........	2,435	31	24	24	82	103	116	171	1,588	183	91	17	5
10 to 19 years.......	2,949	22	27	30	52	83	84	70	503	1,699	228	102	49
Male...........	1,989	14	19	24	39	63	68	64	355	1,044	174	81	44
Female..........	960	8	8	6	13	20	16	6	148	655	54	21	5
20 to 29 years.......	1,196	9	5	16	25	25	20	25	93	227	632	76	43
Male...........	895	7	5	10	21	19	16	22	73	185	432	63	42
Female..........	301	2	......	6	4	6	4	3	20	42	200	13	1
30 to 39 years.......	332	3	1	5	3	1	9	7	22	45	74	134	28
Male...........	269	2	1	5	3	......	8	7	19	37	58	102	27
Female..........	63	1	......	......	......	1	1	......	3	8	16	32	1
40 years and over...	72	......	......	1	......	3	......	3	4	9	7	12	33
Male...........	57	......	......	1	......	2	......	3	4	9	6	10	22
Female..........	15	......	......	......	......	1	......	......	......	......	1	2	11

TABLE 30.—*Number of employees in woolen and worsted mills in the United States, by sex and time employed in industry and by time employed in occupation.*

Sex and time employed in industry.	Total.	Time employed in occupation.											
		Less than 3 months.	3 to 5 months.	6 to 11 months.	1 year.	2 years.	3 years.	4 years.	5 to 9 years.	10 to 19 years.	20 to 29 years.	30 to 39 years.	40 years and over.
Total	35,029	3,764	2,643	3,016	4,535	4,105	2,656	2,396	5,586	3,646	1,807	641	234
Male	19,347	2,172	1,502	1,528	2,212	1,877	1,259	1,185	3,130	2,418	1,327	531	206
Female	15,682	1,592	1,141	1,488	2,323	2,228	1,397	1,211	2,456	1,228	480	110	28
Less than 3 months.	2,019	1,942	14	5	6	7	11	5	10	13	4	......	2
Male	1,097	1,042	10	3	2	5	8	3	7	12	4	......	1
Female	922	900	4	2	4	2	3	2	3	1	......	......	1
3 to 5 months	1,692	182	1,452	9	9	4	3	3	11	12	4	3	......
Male	914	110	761	6	5	2	3	2	7	11	4	3	......
Female	778	72	691	3	4	2	......	1	4	1	......	......	......
6 to 11 months	2,110	221	182	1,644	5	7	9	2	17	10	7	5	1
Male	1,019	116	103	746	4	6	9	1	13	9	6	5	1
Female	1,091	105	79	898	1	1	......	1	4	1	1	......	......
1 year	3,799	315	253	339	2,761	18	6	12	36	36	13	9	1
Male	1,771	181	148	172	1,170	9	2	9	26	33	12	8	1
Female	2,028	134	105	167	1,591	9	4	3	10	3	1	1	......
2 years	3,877	263	202	281	516	2,515	7	10	38	20	16	5	4
Male	1,771	165	120	150	245	1,014	4	8	27	17	12	5	4
Female	2,106	98	82	131	271	1,501	3	2	11	3	4	......	......
3 years	2,710	145	125	171	296	359	1,510	18	39	26	11	9	1
Male	1,191	87	77	87	163	129	571	9	29	20	11	7	1
Female	1,519	58	48	84	133	230	939	9	10	6	......	2	......
4 years	2,664	147	94	121	198	302	286	1,443	34	25	12	2	......
Male	1,272	87	62	66	107	143	137	617	22	19	10	2	......
Female	1,392	60	32	55	91	159	149	826	12	6	2	......	......
5 to 9 years	6,926	319	201	235	434	525	486	584	3,950	107	54	25	6
Male	3,679	225	131	136	270	292	255	289	1,937	74	42	22	6
Female	3,247	94	70	99	164	233	231	295	2,013	33	12	3	......
10 to 19 years	4,919	144	78	115	171	239	215	215	1,067	2,548	85	31	11
Male	3,184	101	54	83	123	172	168	157	732	1,504	56	24	10
Female	1,735	43	24	32	48	67	47	58	335	1,044	29	7	1
20 to 29 years	2,537	57	28	58	90	94	79	61	259	582	1,183	31	15
Male	1,901	34	25	46	77	73	63	53	215	484	795	23	13
Female	636	23	3	12	13	21	16	8	44	98	388	8	2
30 to 39 years	1,213	18	9	25	34	27	27	28	86	198	341	404	16
Male	1,026	15	6	21	31	25	22	23	76	172	301	319	15
Female	187	3	3	4	3	2	5	5	10	26	40	85	1
40 years and over	563	11	5	13	15	8	17	15	39	69	77	117	177
Male	522	9	5	12	15	7	17	14	39	63	74	113	154
Female	41	2	......	1	......	1	......	1	......	6	3	4	23

INDUSTRIAL DEPRESSIONS AND UNEMPLOYMENT.

Many of the woolen and worsted mills are located in small villages and towns remote from large cities or large centers in which other industries are carried on. In such localities there is more steadiness and permanence of employment in the mills than in the larger centers. In important worsted textile centers such as Lawrence, Providence, the Passaic-Paterson district, and Philadelphia, there are other industries offering incentives for change of occupation and great difficulty is experienced in building up an efficient force of permanent employees such as obtain in the competitive centers of the industry in England, Germany, and France. When depressions in the industry in industrial centers throw wage-earners out of employment these persons seek work elsewhere and in other industries. Consequently when resumption of production takes place, the securing of the required number of employees is a task of much difficulty.

Many of those applying for work have had no previous experience in the industry and after a few days' trial either quit of their own accord or are dropped on account of incompetency. A number remain and develop into efficient employees.

Some of the young women tire of being "mill hands" and leave to become clerks in department stores or to enter business houses in various capacities. There are male skilled workers, especially weavers and mule spinners, who go from one textile center to another, remaining a short time in a mill. Whatever the causes may be, the weekly pay rolls bear evidence of the constant changes, resulting in expansion and contraction in the number of persons employed. This condition is well illustrated by the following figures obtained from the records of worsted mills:

Year.	Persons employed.			Year.	Persons employed.		
	Jan. 1.	Dec. 31.	Difference.		Jan. 1.	Dec. 31.	Difference.
1907	5,280	3,974	1,306	1909	4,956	4,782	174
1908	3,974	4,956	982	1910	4,782	3,585	1,197

In some of the larger establishments a card index of each person employed is kept. When a person enters the employment of the mill, the name, occupation, etc., are entered upon an application card. When such employee leaves the mill, the date is recorded on the card. From such card records for a number of establishments the following table was compiled, showing the number of required persons employed in the occupations in the different departments and the number of additional persons hired during the year to fill the vacancies.

Table 31.—*Unemployment and migration of woolen and worsted mill employees: 1907 to 1911.*

1907.

Department.	Average number of persons employed.	Additional different persons hired during year.	Total number of persons employed during the year.	Per cent of persons employed in excess of required number.
Total	11,178	18,214	29,402	163
Wool sorting	334	398	732	119
Combing	978	1,743	2,721	178
Drawing	501	582	1,083	116
Spinning	3,413	6,513	9,926	191
Weaving	3,032	4,731	7,773	156
Burling, mending, and examining	340	763	1,103	224
Dyeing and finishing	1,312	1,823	3,135	139
Miscellaneous	1,268	1,661	2,929	131

1908.

Department.	Average number of persons employed.	Additional different persons hired during year.	Total number of persons employed during the year.	Per cent of persons employed in excess of required number.
Total	11,473	12,932	24,415	113
Wool sorting	389	310	699	80
Combing	979	1,028	2,007	105
Drawing	494	295	789	60
Spinning	3,358	5,457	8,815	163
Weaving	3,176	2,893	6,079	91
Burling, mending, and examining	311	434	745	140
Dyeing and finishing	1,427	1,819	3,246	127
Miscellaneous	1,339	696	2,035	52

1909.

Department.	Average number of persons employed.	Additional different persons hired during year.	Total number of persons employed during the year.	Per cent of persons employed in excess of required number.
Total	12,483	18,255	30,688	147
Wool sorting	489	304	793	62
Combing	1,138	1,852	2,990	163
Drawing	490	541	1,031	110
Spinning	3,575	6,641	10,216	186
Weaving	3,305	4,469	7,774	135
Burling, mending, and examining	348	928	1,276	267
Dyeing and finishing	1,796	2,260	4,056	126
Miscellaneous	1,292	1,260	2,552	98

1910.

Department.	Average number of persons employed.	Additional different persons hired during year.	Total number of persons employed during the year.	Per cent of persons employed in excess of required number.
Total	13,233	15,188	28,421	115
Wool sorting	466	360	826	77
Combing	998	843	1,841	84
Drawing	527	714	1,241	135
Spinning	3,166	3,246	6,412	103
Weaving	4,265	5,201	9,466	122
Burling, mending, and examining	501	796	1,297	159
Dyeing and finishing	1,537	1,908	3,445	124
Miscellaneous	1,773	2,120	3,893	120

1911.

Department.	Average number of persons employed.	Additional different persons hired during year.	Total number of persons employed during the year.	Per cent of persons employed in excess of required number.
Total	3,112	4,436	7,548	143
Wool sorting	25	25	50	100
Combing	85	56	141	66
Drawing	69	71	140	103
Spinning	233	361	594	155
Weaving	1,678	2,254	3,932	134
Burling, mending, and examining	111	331	442	298
Dyeing and finishing	482	579	1,061	120
Miscellaneous	429	759	1,188	177

The table shows that in 1907 the average number of persons employed was 11,178, but on account of the continual changes, employees quitting or being discharged, 29,402 persons were hired to carry on the work, this number being 163 per cent in excess of the number actually required to do the work.

In 1908, 11,473 persons were required in the different occupations, but 24,415 persons were employed to fill the vacancies, this number being 113 per cent in excess of the number at work.

In 1909, 12,433 persons were required for the different positions, but 30,688 persons were employed to fill the vacancies occurring, this number being 147 per cent in excess of those at work.

In 1910, 13,233 persons were employed to fill the positions, but 28,421 persons were hired to take the places of those discharged or those who quit of their own accord, this number being 115 per cent more than the average number at work.

In 1911 a smaller number of establishments reported, showing 3,112 positions in the mills, and a total of 7,548 persons employed to fill the vacancies, or 143 per cent in excess of the number actually required for the work.

The table should not be construed to mean that anything like a renewal of the larger part of the forces employed during the year took place, even though the number of persons hired during the year was two or three times as large as the number of positions in the mill. One-half of the working forces might be permanent, but to supply vacancies in the other half a great number of persons would be tried. It will be seen from tables 11, 14, and 19 showing "experience in the industry," that 42.8 per cent of all employees had been employed in the mills in which they were at work at the time of the investigation from 1 to 4 years; 16.5 per cent, from 5 to 9 years; and 13 per cent, for 10 years and over.

RATES OF WAGES.

At each of the mills the occupation of each employee, the rate of wages per hour, day, week, or month for time workers, with the hours worked and amount earned, were copied directly from the pay rolls of the establishment for a full-time period of from one to four weeks by the agents of the Tariff Board. For piece workers the total earnings and hours worked for from two to four weeks were secured for each employee. Sex and age period were obtained in each case.

The pay period chosen for each mill was one during which the working forces were employed for the regular working hours of a full-time week, care being taken to exclude those periods in which holidays occurred or in which the operatives worked overtime. During the period of investigation from May to October, 1911, there was a depression in the industry, which reduced the number of employees in the mills investigated to about 35,000, although the number required for the operation of the mills under normal conditions would be 45,500.

The hours of labor per week in the mills of the various States ranged from 54 to 60 for operatives 16 years of age and over and and from 48 to 60 for operatives under 16 years of age. The earnings in all of the States have been reduced to hourly rates. With these hourly rates as a working basis, it has been possible to present the rates of wages in the woolen and worsted industry in greater detail and for a greater number of occupations than has hitherto been possible in the scope of wage investigations.

It should be stated that free access to pay rolls, books of account, records of daily and weekly production, etc., and to all departments of the mills were furnished in each case.

The number and distribution of the operatives shown in the tables presenting statistics relative to wages are not identical with the corresponding data given in the tables presenting statistics concerning country of birth, length of service, and former industry. This is the result of the difference in the methods of obtaining the data. As already explained, the wage rates were derived from data copied directly from the pay rolls of the establishment for a period during which the mill was operating normally. The other series of tables were based on the statistics reported for the operatives actually at work in the mills when they were investigated by the agents of the Tariff Board. In a number of cases the mills were not operating under normal conditions at the time the agents were there. In some instances the change was being made from winter goods to summer goods, and this necessitated more or less readjustment.

OCCUPATIONS AND WAGES.

Table 32 shows the distribution, by occupation and specified rates of wages, of the operatives engaged in the specified woolen and worsted mills, with the exception of the weavers. Tables 33 and 34 present the same data for the males and females, respectively. Data concerning weavers are presented in Tables 39 to 42.

TABLE 32.—*Number of operatives receiving specified hourly rates of wages, by department and occupation.*

Department and occupation.	Number of operatives in woolen and worsted mills in the United States.															
	Total.	Receiving an hourly rate of wages of—														
		75 cents and over.	60 to 74.99 cents.	45 to 59.99 cents.	35 to 44.99 cents.	30 to 34.99 cents.	25 to 29.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 9.99 cents.	6 to 7.99 cents.	Less than 6 cents.
Total	[1]30,454	33	60	109	291	468	2,004	2,604	1,682	2,635	4,926	6,007	6,153	2,722	661	99
Wool-sorting department	964	1	3	4	19	22	244	135	69	115	128	134	42	48	....	....
Overseer	31	1	3	4	10	6	4	3	....	....	....	....	....	....	....	....
Second hand	20	....	....	....	3	3	12	2	....	....	....	....	....	....	....	....
Third hand	2	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....
Wool sorter	508	....	....	....	5	6	222	124	57	94	....	....	....	....	....	....
Wool sorter, apprentice	231	....	....	....	....	....	1	3	10	9	84	73	26	25	....	....
Wool inspector	12	....	....	....	1	....	3	3	2	3	....	....	....	....	....	....
Floor hand	121	....	....	....	....	6	1	....	....	9	44	58	2	1	....	....
Clipper	39	....	....	....	....	....	....	....	....	....	....	3	14	22	....	....
Wool-scouring department	287	1	1	2	4	5	8	20	13	65	78	79	11	....	....	....
Overseer	19	1	1	2	3	4	5	3	....	....	....	....	....	....	....	....
Second hand	12	....	....	....	1	1	2	4	1	1	1	1	....	....	....	....
Third hand	3	....	....	....	....	....	....	2	....	....	1	....	....	....	....	....
Section hand	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Scouring-machine tender	252	....	....	....	....	....	1	10	12	64	76	78	11	....	....	....

[1] Exclusive of weavers.

TABLE 32.—*Number of operatives receiving specified hourly rates of wages, by department and occupation*—Continued.

Department and occupation.	Number of operatives in woolen and worsted mills in the United States.															
	Total.	Receiving an hourly rate of wages of—														
		75 cents and over.	60 to 74.99 cents.	45 to 59.99 cents.	35 to 44.99 cents.	30 to 34.99 cents.	25 to 29.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 9.99 cents.	6 to 7.99 cents.	Less than 6 cents.
Carding department, worsted	366	1	....	3	9	8	9	13	14	48	101	58	88	14	....	....
Overseer	14	1	....	3	7	2	....	1	....	....	....	....	....	....	....	....
Second hand	21	....	....	....	2	6	6	4	1	1	1	....	....	....	....	....
Third hand	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Section hand	6	....	....	....	....	....	2	3	....	1	....	....	....	....	....	....
Card tender	31	....	....	....	....	....	....	....	1	3	7	8	11	1	....	....
Balling-head tender	61	....	....	....	....	....	....	....	1	3	5	11	35	6	....	....
Card stripper	88	....	....	....	....	....	....	1	6	34	31	14	2	....	....	....
Card cleaner	128	....	....	....	....	....	....	....	....	1	55	25	40	7	....	....
Card grinder	16	....	....	....	....	....	....	4	5	5	2	....	....	....	....	....
Carding department, woolen	534	1	2	8	14	12	19	22	15	45	174	114	101	7	....	....
Overseer	43	1	2	8	13	5	9	2	....	2	1	....	....	....	....	....
Second hand	42	....	....	....	1	7	10	14	5	3	2	....	....	....	....	....
Third hand	22	....	....	....	....	....	....	1	8	13	....	....	....	....	....	....
Section hand	5	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....
Card tender	194	....	....	....	....	....	....	....	....	3	55	52	79	5	....	....
Card stripper	140	....	....	....	....	....	....	....	2	16	109	13	....	....	....	....
Card cleaner	73	....	....	....	....	....	....	....	....	2	4	44	21	2	....	....
Card grinder	15	....	....	....	....	....	....	....	....	6	3	5	1	....	....	....
Combing department (Bradford system)	1,012	....	4	3	8	7	44	17	13	49	153	379	227	108	....	....
Overseer	18	....	3	2	4	5	3	1	....	....	....	....	....	....	....	....
Second hand	23	....	1	....	4	1	5	6	1	....	4	....	1	....	....	....
Third hand	2	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....
Section hand	65	....	....	....	....	....	27	6	10	14	6	2	....	....	....	....
Gill-box tender	494	....	....	....	....	....	1	....	1	2	32	229	138	91	....	....
Balling-machine tender	55	....	....	....	....	....	....	....	....	....	....	10	45	....	....	....
Noble-comb tender	229	....	....	....	....	....	....	....	....	26	90	76	26	11	....	....
Backwash-machine tender	78	....	....	....	....	....	....	....	....	3	14	39	16	6	....	....
Pin setter and brush maker	21	....	....	1	....	1	8	4	....	2	....	4	1	....	....	....
Top carrier	27	....	....	....	....	....	....	....	1	2	5	19	....	....	....	....
Combing department (French system)	340	4	1	2	4	4	6	5	27	6	6	40	193	41	1	....
Overseer	18	4	1	1	3	3	4	1	....	1	....	....	....	....	....	....
Second hand	8	....	....	1	1	1	1	3	....	1	....	....	....	....	....	....
Section hand	4	....	....	....	....	....	1	1	....	1	....	1	....	....	....	....
Gill-box tender	197	....	....	....	....	....	....	....	21	1	1	19	130	25	....	....
Balling-machine tender	9	....	....	....	....	....	....	....	....	....	....	....	7	1	1	....
French comb tender	41	....	....	....	....	....	....	....	5	....	2	14	20	....	....	....
Backwash-machine tender	56	....	....	....	....	....	....	....	....	1	2	5	35	13	....	....
Pin setter and brush maker	7	....	....	....	....	....	....	....	1	1	1	1	1	2	....	....
Drawing department (Bradford system)	1,420	....	3	....	3	4	13	8	3	16	63	611	537	146	13	....
Overseer	7	....	3	....	1	1	1	1	....	....	....	....	....	....	....	....
Second hand	11	....	....	....	2	2	2	1	1	....	2	....	1	....	....	....
Section hand	27	....	....	....	....	1	10	6	2	8	....	....	....	....	....	....
Drawing-frame tender	1,168	....	....	....	....	....	....	....	....	7	60	559	445	97	....	....
Doffer	160	....	....	....	....	....	....	....	....	....	....	37	63	47	13	....
Roving carrier	47	....	....	....	....	....	....	....	....	1	1	15	28	2	....	....

TABLE 32.—*Number of operatives receiving specified hourly rates of wages, by department and occupation*—Continued.

Department and occupation.	Number of operatives in woolen and worsted mills in the United States.															
	Total.	Receiving an hourly rate of wages of—														
		75 cents and over.	60 to 74.99 cents.	45 to 59.99 cents.	35 to 44.99 cents.	30 to 34.99 cents.	25 to 25.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 9.99 cents.	6 to 7.99 cents.	Less than 6 cents.
Drawing department (French system)	515			1	2		4	1	1	10	2	194	244	56		
Overseer	2			1			1									
Second hand	3				2		1									
Section hand	8						2	1	1	4						
Drawing-frame tender	502									6	2	194	244	56		
Frame spinning department	3,547	2	5	3	5	25	48	45	7	24	584	702	1,121	813	151	12
Overseer	50	2	5	3	4	10	15	9	1		1					
Second hand	62				1	10	25	13	2	7	4					
Third hand	12					5	1	1			3		2			
Section hand	25						7	11		1	3	3				
Frame spinner	1,199								2	3	365	349	286	194		
Doffer	592									1	5	13	148	297	118	10
Bobbin setter	198										3	24	51	90	28	2
Roving carrier	102									1	2	40	30	27	2	
Twister	1,161									10	192	237	529	193		
Yarn inspector	146							11	2	1	6	36	75	12	3	
Mule spinning department, worsted	1,215	3	6	10	12	23	118	127	23	32	66	189	442	152	12	
Overseer	22	3	6	4	5	1	3									
Second hand	22			6	2	3	8	2	1							
Section hand	9						9									
Mule spinner	209				5	15	73	59	10	14	14	19				
Mule spinner, helper	65							20	10	9	5	14	5	2		
Joiner	83					4	25	46	2	3	2	1				
Piecer	418									6	29	149	234			
Doffer	387										16	6	203	150	12	
Mule spinning department, woolen	741	2		3	9	21	121	192	120	62	50	51	62	43	5	
Overseer	26	2		3	9	6	6									
Second hand	28					4	4	13	2	5						
Third hand	1						1									
Mule spinner	462					11	101	162	107	26	20	14	21			
Mule spinner, helper[1]	9										3	1	5			
Piecer[1]	29										1	9	19			
Doffer	66								2			8	9	43	4	
Roving carrier	97							3	9	31	26	19	8		1	
Mule fixer	23						9	14								
Winding department	648			1	1	3	9	21	12	45	98	135	164	116	39	4
Overseer	11			1	1	3	3	1				1	1			
Second hand	14						2	3	2	5	1	1				
Third hand	1											1				
Section hand	5							3	1	1						
Winder	550						4	13	8	38	89	123	147	89	39	
Bobbin carrier	67							1	1	1	8	9	16	27		4
Spooling department	1,378					2	5	10		34	108	203	753	193	62	8
Overseer	11					2	4	3			1	1				
Second hand	7						1	4			2					
Section hand	4							3			1					
Spooler	1,200									34	96	173	689	149	51	8
Reeler	148										8	29	64	44	3	
Reel setter	8														8	

[1] Occupations in establishments where continental system is in use.

TABLE 32.—*Number of operatives receiving specified hourly rates of wages, by department and occupation*—Continued.

Department and occupation.	Number of operatives in woolen and worsted mills in the United States.															
	Total.	Receiving an hourly rate of wages of—														
		75 cents and over.	60 to 74.99 cents.	45 to 59.99 cents.	35 to 44.99 cents.	30 to 34.99 cents.	25 to 29.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 9.99 cents.	6 to 7.99 cents.	Less than 6 cents.
Dressing department	659	....	....	6	14	21	228	159	16	42	42	24	106	1	....	....
Overseer	30	....	....	6	10	8	5	....	1	....	....	....	....	....	....	....
Second hand	20	....	....	....	1	5	9	2	....	1	1	1	....	....	....	....
Section hand	12	....	....	....	2	....	1	5	....	3	1	....	....	....	....	....
Dresser tender	385	....	....	....	1	6	185	124	7	20	19	8	15	....	....	....
Sizing-machine tender	55	....	....	....	....	2	8	11	7	11	13	3	....	....	....	....
Sizing beamer	145	....	....	....	....	....	13	17	1	3	8	11	91	1	....	....
Beam fixer	5	....	....	....	....	....	....	....	....	4	....	1	....	....	....	....
Warper	7	....	....	....	....	....	7	....	....	....	....	....	....	....	....	....
Weaving department	[1]1,570	3	4	15	36	71	385	294	124	135	66	65	89	99	140	44
Overseer	68	3	4	14	19	7	11	10	....	....	....	....	....	....	....	....
Second hand	57	....	....	1	11	7	18	11	3	5	1	....	....	....	....	....
Third hand	3	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....
Section hand	37	....	....	....	5	....	21	11	....	....	....	....	....	....	....	....
Weaver[2]	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Loom fixer	432	....	....	....	1	56	279	65	17	14	....	....	....	....	....	....
Harness fixer	43	....	....	....	....	....	....	17	2	10	2	8	2	2	....	....
Drawer-in	393	....	....	....	....	....	37	83	59	71	53	46	44	....	....	....
Hander-in	309	....	....	....	....	....	....	....	....	....	2	3	26	94	140	44
Tier-in	10	....	....	....	....	....	....	3	3	1	1	2	....	....	....	....
Chain builder	44	....	....	....	....	....	....	11	4	5	1	4	16	3	....	....
Cloth percher	106	....	....	....	....	1	14	59	8	17	4	2	1	....	....	....
Cloth examiner	68	....	....	....	....	....	2	24	28	12	2	....	....	....	....	....
Burling and mending department	3,022	....	1	2	7	32	129	357	340	297	368	626	498	253	85	27
Overseer	47	....	1	2	6	7	10	2	4	2	12	1	....	....	....	....
Second hand	16	....	....	....	....	1	8	3	2	1	....	....	1	....	....	....
Section hand	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Burler	1,364	....	....	....	....	....	3	30	74	97	125	400	355	168	85	27
Mender	1,375	....	....	....	....	....	89	256	225	185	212	210	124	74	....	....
Inspector	219	....	....	....	1	24	19	65	35	12	19	15	18	11	....	....
Finishing department	1,508	3	13	13	30	43	69	99	103	196	450	377	88	24	....	....
Overseer	127	2	13	13	22	19	27	18	9	3	1	....	....	....	....	....
Second hand	78	....	....	....	7	11	19	33	5	1	1	1	....	....	....	....
Third hand	14	....	....	....	....	....	1	4	4	5	....	....	....	....	....	....
Section hand	25	....	....	....	....	....	7	6	4	8	....	....	....	....	....	....
Washing-machine tender	245	....	....	....	....	....	....	4	10	16	65	136	13	1	....	....
Fulling-mill tender	30	....	....	....	....	....	....	2	3	7	13	5	....	....	....	....
Crabbing-machine tender	78	....	....	....	....	....	1	2	2	6	45	22	....	....	....	....
Gigging-machine tender	88	....	....	....	....	....	....	....	1	2	66	10	9	....	....	....
Drying-machine tender	187	....	....	....	....	....	....	1	6	12	79	50	25	14	....	....
Teasling-machine tender	86	....	....	....	....	....	....	4	1	22	22	25	12	....	....	....
Brushing-machine tender	66	....	....	....	....	....	....	....	....	5	39	18	4	....	....	....
Shearing-machine tender	279	....	....	....	....	....	14	18	45	74	62	46	13	7	....	....
Pressing-machine tender	205	1	....	....	1	13	....	7	13	35	57	64	12	2	....	....
Dyeing department	791	10	9	8	13	7	15	38	31	170	307	158	25	....	....	....
Overseer	43	10	9	5	8	1	3	1	3	2	1	....	....	....	....	....
Second hand	34	....	....	3	3	4	5	11	5	3	....	....	....	....	....	....
Third hand	4	....	....	....	....	....	....	1	....	3	....	....	....	....	....	....
Section hand	20	....	....	....	....	....	3	9	2	6	....	....	....	....	....	....
Dyehouse hand	690	....	....	....	2	2	4	16	21	156	306	158	25	....	....	....

[1] Exclusive of weavers.
[2] Weavers' earnings are shown in Tables 39 to 42.

TABLE 32.—*Number of operatives receiving specified hourly rates of wages, by department and occupation*—Continued.

Department and occupation.	Number of operatives in woolen and worsted mills in the United States.															
	Total.	Receiving an hourly rate of wages of—														
		75 cents and over.	60 to 74.99 cents.	45 to 59.99 cents.	35 to 44.99 cents.	30 to 34.99 cents.	25 to 29.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 99.9 cents.	6 to 7.99 cents.	Less than 6 cents.
Mechanical and general department	2,684	....	2	8	62	71	309	552	211	407	543	413	76	26	4	....
Overseer	55	....	....	3	22	11	11	5	1	....	2	....	....	....	....	....
Second hand	14	....	....	1	2	4	3	4	....	....	....	....	....	....	....	....
Third hand	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Section hand	2	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....
Machinist	326	....	....	1	5	9	113	150	21	27	....	....	....	....	....	....
Machinist apprentice	56	....	....	....	....	....	....	....	....	....	21	24	4	4	3	....
Blacksmith	24	....	....	....	....	2	13	9	....	....	....	....	....	....	....	....
Blacksmith helper	13	....	....	....	....	....	....	....	2	6	4	1	....	....	....	....
Pipe fitter	80	....	....	....	3	2	16	26	11	22	....	....	....	....	....	....
Carpenter	222	....	....	....	8	17	64	133	....	....	....	....	....	....	....	....
Painter	54	....	....	....	....	3	7	25	19	....	....	....	....	....	....	....
Tinsmith	21	....	....	....	....	....	12	3	6	....	....	....	....	....	....	....
Electrician	57	....	1	2	3	5	18	28	....	....	....	....	....	....	....	....
Electrician helper	61	....	....	....	....	....	....	....	12	23	10	13	1	2	....	....
Mason	6	....	....	....	1	....	5	....	....	....	....	....	....	....	....	....
Pin setter	47	....	....	....	4	2	10	2	3	9	2	4	5	6	....	....
Engineer	85	....	1	1	14	16	19	31	3	....	....	....	....	....	....	....
Oiler	213	....	....	....	....	....	1	11	7	32	82	55	14	11	....	....
Fireman	233	....	....	....	....	....	6	72	64	69	16	6	....	....	....	....
Fireman helper	48	....	....	....	....	....	....	6	....	1	28	13	....	....	....	....
Teamster	70	....	....	....	....	....	4	10	10	15	29	2	....	....	....	....
Watchman	136	....	....	....	....	....	3	14	15	36	55	13	....	....	....	....
General laborer	860	....	....	....	....	....	4	23	36	165	294	282	52	3	1	....
Miscellaneous department[1]	7,253	2	6	17	39	87	221	489	540	837	1,539	1,455	1,286	582	149	4

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[1] Includes packing, waste, and shipping departments, and miscellaneous occupations in various departments.

TABLE 33.—*Number of male operatives receiving specified hourly rates of wages, by department and occupation.*

Department and occupation.	Number of male operatives in woolen and worsted mills in the United States.															
	Total.	Receiving an hourly rate of wages of—														
		75 cents and over.	60 to 74.99 cents.	45 to 59.99 cents.	35 to 44.99 cents.	30 to 34.99 cents.	25 to 29.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 9.99 cents.	6 to 7.99 cents.	Less than 6 cents.
Total	[1] 17,343	33	59	106	287	451	1,849	2,109	1,142	2,036	3,729	3,186	1,453	757	133	13
Wool-sorting department	844	1	3	4	19	22	244	126	58	97	101	123	20	26	....	....
Overseer	31	1	3	4	10	6	4	3	....	....	....	....	....	....	....	....
Second hand	20	....	....	....	3	3	12	2	....	....	....	....	....	....	....	....
Third hand	2	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....
Wool sorter	470	....	....	....	5	6	222	115	46	76	....	....	....	....	....	....
Wool sorter apprentice	188	....	....	....	....	....	1	3	10	9	57	65	18	26	....	....
Wool inspector	12	....	....	....	1	....	3	3	2	3	....	....	....	....	....	....
Floor hand	121	....	....	....	....	6	1	....	....	9	44	58	2	1	....	....
Wool-scouring department	282	1	1	2	4	5	8	20	13	65	78	74	11	....	....	....
Overseer	19	1	1	2	3	4	5	3	....	....	....	....	....	....	....	....
Second hand	12	....	....	....	1	1	2	4	1	1	1	1	....	....	....	....
Third hand	3	....	....	....	....	....	....	2	....	....	1	....	....	....	....	....
Section hand	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Scouring-machine tender	247	....	....	....	....	....	1	10	12	64	76	73	11	....	....	....
Carding department, worsted	345	1	....	3	9	8	9	13	14	48	101	58	76	5	....	....
Overseer	14	1	....	3	7	2	....	1	....	....	....	....	....	....	....	....
Second hand	21	....	....	....	2	6	6	4	1	1	1	....	....	....	....	....
Third hand	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Section hand	6	....	....	....	....	....	2	3	....	1	....	....	....	....	....	....
Card tender	29	....	....	....	....	....	....	....	1	3	7	8	9	1	....	....
Balling-head tender	53	....	....	....	....	....	....	....	1	3	5	11	31	2	....	....
Card stripper	88	....	....	....	....	....	....	1	6	34	31	14	2	....	....	....
Card cleaner	117	....	....	....	....	....	....	....	....	1	55	25	34	2	....	....
Card grinder	16	....	....	....	....	....	....	4	5	5	2	....	....	....	....	....
Carding department, woolen	459	1	2	8	14	12	19	22	15	45	174	90	56	1	....	....
Overseer	43	1	2	8	13	5	9	2	....	2	1	....	....	....	....	....
Second hand	42	....	....	....	1	7	10	14	5	3	2	....	....	....	....	....
Third hand	22	....	....	....	....	....	....	1	8	13	....	....	....	....	....	....
Section hand	5	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....
Card tender	136	....	....	....	....	....	....	....	....	3	55	34	44	....	....	....
Card stripper	140	....	....	....	....	....	....	....	2	16	109	13	....	....	....	....
Card cleaner	56	....	....	....	....	....	....	....	....	2	4	38	11	1	....	....
Card grinder	15	....	....	....	....	....	....	....	....	6	3	5	1	....	....	....
Combing department (Bradford system)	682	....	4	3	8	7	44	17	13	49	135	267	126	9	....	....
Overseer	18	....	3	2	4	5	3	1	....	....	....	....	....	....	....	....
Second hand	23	....	1	....	4	1	5	6	1	....	4	....	1	....	....	....
Third hand	2	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....
Section hand	65	....	....	....	....	....	27	6	10	14	6	2	....	....	....	....
Gill-box tender	257	....	....	....	....	....	1	....	1	2	30	146	71	6	....	....
Balling-machine tender	50	....	....	....	....	....	....	....	....	....	....	10	40	....	....	....
Noble-comb tender	150	....	....	....	....	....	....	....	....	26	74	48	1	1	....	....
Backwash-machine tender	70	....	....	....	....	....	....	....	....	3	14	39	12	2	....	....
Pin setter and brushmaker	21	....	....	1	....	1	8	4	....	2	....	4	1	....	....	....
Top carrier	26	....	....	....	....	....	....	....	1	2	5	18	....	....	....	....

[1] Exclusive of weavers.

TABLE 33.—*Number of male operatives receiving specified hourly rates of wages, by department and occupation*—Continued.

Department and occupation.	Number of male operatives in woolen and worsted mills in the United States.															
	Total.	Receiving an hourly rate of wages of—														
		75 cents and over.	60 to 74.99 cents.	45 to 59.99 cents.	35 to 44.99 cents.	30 to 34.99 cents.	25 to 29.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 9.99 cents.	6 to 7.99 cents.	Less than 6 cents.
Combing department (French system).....	77	4	1	2	4	4	6	5	1	6	6	34	1	2	1	....
Overseer...........	18	4	1	1	3	3	4	1	....	1	....	....	....	....	....	....
Second hand.......	8	....	....	1	1	1	1	3	....	1	....	....	....	....	....	....
Section hand.......	4	....	....	....	....	....	1	1	....	1	....	1	....	....	....	....
Gill-box tender.....	21	....	....	....	....	....	....	....	....	1	1	19	....	....	....	....
Balling-machine tender...........	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....
French-comb tender	10	....	....	....	....	....	....	....	....	....	2	8	....	....	....	....
Backwash-machine tender...........	8	....	....	....	....	....	....	....	....	1	2	5	....	....	....	....
Pin setter and brushmaker......	7	....	....	....	....	....	....	....	1	1	1	1	1	2	....	....
Drawing department (Bradford system)...	401	....	3	....	3	4	13	8	3	13	49	144	134	26	1	....
Overseer...........	7	....	3	....	1	1	1	1	....	....	....	....	....	....	....	....
Second hand.......	11	....	....	....	2	2	2	1	1	....	2	....	1	....	....	....
Section hand.......	27	....	....	....	....	1	10	6	2	8	....	....	....	....	....	....
Drawing-frame tender...........	237	....	....	....	....	....	....	....	....	4	46	108	78	1	....	....
Doffer.............	74	....	....	....	....	....	....	....	....	....	....	21	28	24	1	....
Roving carrier.....	45	....	....	....	....	....	....	....	....	1	1	15	27	1	....	....
Drawing department (French system).....	19	....	....	1	2	....	4	1	1	5	....	5	....	....	....	....
Overseer...........	2	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....
Second hand.......	3	....	....	....	2	....	1	....	....	....	....	....	....	....	....	....
Section hand.......	8	....	....	....	....	....	2	1	1	4	....	....	....	....	....	....
Drawing-frame tender...........	6	....	....	....	....	....	....	....	....	1	....	5	....	....	....	....
Frame spinning department................	1,003	2	5	3	5	25	48	43	6	15	166	200	162	273	50	....
Overseer...........	50	2	5	3	4	10	15	9	1	....	1	....	....	....	....	....
Second hand.......	62	....	....	....	1	10	25	13	2	7	4	....	....	....	....	....
Third hand.........	12	....	....	....	....	5	1	1	....	....	3	....	2	....	....	....
Section hand.......	25	....	....	....	....	....	7	11	....	1	3	3	....	....	....	....
Frame spinner.....	233	....	....	....	....	....	....	....	1	3	133	87	9	....	....	....
Doffer.............	282	....	....	....	....	....	....	....	....	1	4	13	65	168	31	....
Bobbin setter......	174	....	....	....	....	....	....	....	....	....	3	24	49	82	16	....
Roving carrier.....	92	....	....	....	....	....	....	....	....	1	2	40	27	20	2	....
Twister............	48	....	....	....	....	....	....	....	....	1	7	27	10	3	....	....
Yarn inspector.....	25	....	....	....	....	....	....	9	2	1	6	6	....	....	1	....
Mule spinning department, worsted........	609	3	6	10	12	23	118	119	23	32	66	54	93	44	6	....
Overseer...........	22	3	6	4	5	1	3	....	....	....	....	....	....	....	....	....
Second hand.......	22	....	....	6	2	3	8	2	1	....	....	....	....	....	....	....
Section hand.......	9	....	....	....	....	....	9	....	....	....	....	....	....	....	....	....
Mule spinner.......	190	....	....	....	5	15	73	51	10	14	14	8	....	....	....	....
Mule spinner helper	65	....	....	....	....	....	....	20	10	9	5	14	5	2	....	....
Joiner.............	83	....	....	....	....	4	25	46	2	3	2	1	....	....	....	....
Piecer.............	74	....	....	....	....	....	....	....	....	6	29	27	12	....	....	....
Doffer.............	144	....	....	....	....	....	....	....	....	....	16	4	76	42	6	....

TABLE 33.—*Number of male operatives receiving specified hourly rates of wages, by department and occupation*—Continued.

Department and occupation.	Number of male operatives in woolen and worsted mills in the United States.															
	Total.	Receiving an hourly rate of wages of—														
		75 cents and over.	60 to 74.99 cents.	45 to 59.99 cents.	35 to 44.99 cents.	30 to 34.99 cents.	25 to 29.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 9.99 cents.	6 to 7.99 cents.	Less than 6 cents.
Mule spinning department, woolen	697	2		3	9	21	120	191	115	61	44	42	41	43	5	
Overseer	26	2		3	9	6	6									
Second hand	28					4	4	13	2	5						
Third hand	1						1									
Mule spinner	418					11	100	161	102	25	14	5				
Mule spinner helper[1]	9										3	1	5			
Piecer[1]	29										1	9	19			
Doffer	66								2			8	9	43	4	
Roving carrier	97							3	9	31	26	19	8		1	
Mule fixer	23						9	14								
Winding department	161			1	1	3	5	12	8	13	22	25	33	34	1	3
Overseer	9			1	1	3	3	1								
Second hand	14						2	3	2	5	1	1				
Third hand	1											1				
Section hand	5							3	1	1						
Winder	68							4	4	6	13	14	17	9	1	
Bobbin carrier	64							1	1	1	8	9	16	25		3
Spooling department	53					2	4	9			16	6	14	2		
Overseer	9					2	3	3			1					
Second hand	6						1	3			2					
Section hand	4							3			1					
Spooler	29										9	6	12	2		
Reeler	5										3		2			
Dressing department	514			6	14	21	227	154	15	34	31	9	2	1		
Overseer	30			6	10	8	5		1							
Second hand	19				1	5	9	2			1	1				
Section hand	8				2		1	3		2						
Dresser tender	352				1	6	184	121	7	16	13	2	2			
Sizing machine tender	55					2	8	11	7	11	13	3				
Sizing beamer	38						13	17		1	4	2		1		
Beam fixer	5									4		1				
Warper	7						7									
Weaving department	[2] 907	3	4	15	36	71	353	203	68	66	15	16	25	7	18	7
Overseer	68	3	4	14	19	7	11	10								
Second hand	57			1	11	7	18	11	3	5	1					
Third hand	3						3									
Section hand	28				5		21	2								
Weaver[3]																
Loom fixer	432				1	56	279	65	17	14						
Harness fixer	41							17	2	10	2	8	2			
Drawer-in	20						5	4	5	2	2		2			
Hander-in	35										2		4	4	18	7
Tier-in	6							1	1	1	1	2				
Chain builder	44							11	4	5	1	4	16	3		
Cloth percher	106					1	14	59	8	17	4	2	1			
Cloth examiner	67						2	23	28	12	2					
Burling and mending department	170		1	2	7	31	35	50	14	3	9	7	4	7		
Overseer	26		1	2	6	7	8	2								
Second hand	13						8	3	1	1						
Section hand	1							1								
Burler	6										1	4	1			
Inspector	124				1	24	19	44	13	2	8	3	3	7		

[1] Occupation in establishments where continental system is in use.
[2] Exclusive of weavers.
[3] Weavers' earnings shown in Tables 39 to 42.

TABLE 33.—*Number of male operatives receiving specified hourly rates of wages, by department and occupation*—Continued.

Department and occupation.	Number of male operatives in woolen and worsted mills in the United States.															
	Total.	Receiving an hourly rate of wages of—														
		75 cents and over.	60 to 74.99 cents.	45 to 59.99 cents.	35 to 44.99 cents.	30 to 34.99 cents.	25 to 29.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 9.99 cents.	6 to 7.99 cents.	Less than 6 cents
Finishing department	1,474	3	13	13	30	43	69	99	100	196	449	364	77	18	....	....
Overseer	127	2	13	13	22	19	27	18	9	3	1	....	....	....	....	....
Second hand	78	....	....	....	7	11	19	33	5	1	1	1	....	....	....	....
Third hand	14	....	....	....	....	....	1	4	4	5	....	....	....	....	....	....
Section hand	25	....	....	....	....	....	7	6	4	8	....	....	....	....	....	....
Washing-machine tender	245	....	....	....	....	....	....	4	10	16	65	136	13	1	....	....
Fulling-machine tender	30	....	....	....	....	....	....	2	3	7	13	5	....	....	....	....
Crabbing-machine tender	78	....	....	....	....	....	1	2	2	6	45	22	....	....	....	....
Gigging-machine tender	88	....	....	....	....	....	....	....	1	2	66	10	9	....	....	....
Drying-machine tender	183	....	....	....	....	....	....	1	4	12	79	50	23	14	....	....
Teasling-machine tender	86	....	....	....	....	....	....	4	1	22	22	25	12	....	....	....
Brushing-machine tender	65	....	....	....	....	....	....	....	....	5	38	18	4	....	....	....
Shearing-machine tender	255	....	....	....	....	....	14	18	44	74	62	34	7	2	....	....
Pressing-machine tender	200	1	....	....	1	13	....	7	13	35	57	63	9	1	....	....
Dyeing department	791	10	9	8	13	7	15	38	31	170	307	158	25	....	....	....
Overseer	43	10	9	5	8	1	3	1	3	2	1	....	....	....	....	....
Second hand	34	....	....	3	3	4	5	11	5	3	....	....	....	....	....	....
Third hand	4	....	....	....	....	....	....	1	....	3	....	....	....	....	....	....
Section hand	20	....	....	....	....	....	3	9	2	6	....	....	....	....	....	....
Dyehouse hand	690	....	....	....	2	2	4	16	21	156	306	158	25	....	....	....
Mechanical and general department	2,656	....	2	8	62	71	309	551	211	407	540	409	56	26	4	....
Overseer	55	....	....	3	22	11	11	5	1	....	2	....	....	....	....	....
Second hand	14	....	....	1	2	4	3	4	....	....	....	....	....	....	....	....
Third hand	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Section hand	2	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....
Machinist	326	....	....	1	5	9	113	150	21	27	....	....	....	....	....	....
Machinist apprentice	56	....	....	....	....	....	....	....	....	....	21	24	4	4	3	....
Blacksmith	24	....	....	....	....	2	13	9	....	....	....	....	....	....	....	....
Blacksmith's helper	13	....	....	....	....	....	....	....	2	6	4	1	....	....	....	....
Pipe fitter	80	....	....	....	3	2	16	26	11	22	....	....	....	....	....	....
Carpenter	222	....	....	....	8	17	64	133	....	....	....	....	....	....	....	....
Painter	54	....	....	....	....	3	7	25	19	....	....	....	....	....	....	....
Tinsmith	21	....	....	....	....	....	12	3	6	....	....	....	....	....	....	....
Electrician	57	....	1	2	3	5	18	28	....	....	....	....	....	....	....	....
Electrician helper	61	....	....	....	....	....	....	....	12	23	10	13	1	2	....	....
Mason	6	....	....	....	1	....	5	....	....	....	....	....	....	....	....	....
Pin setter	47	....	....	....	4	2	10	2	3	9	2	4	5	6	....	....
Engineer	85	....	1	1	14	16	19	31	3	....	....	....	....	....	....	....
Oiler	213	....	....	....	....	....	1	11	7	32	82	55	14	11	....	....
Fireman	233	....	....	....	....	....	6	72	64	69	16	6	....	....	....	....
Fireman's helper	48	....	....	....	....	....	....	6	....	1	28	13	....	....	....	....
Teamster	70	....	....	....	....	....	4	10	10	15	29	2	....	....	....	....
Watchman	136	....	....	....	....	....	3	14	15	36	55	13	....	....	....	....
General laborer	832	....	....	....	....	....	4	22	36	165	291	278	32	3	1	....
Miscellaneous department[1]	5,199	2	5	14	35	71	199	428	433	711	1,420	1,101	497	233	47	3

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[1] Includes packing, waste, and shipping departments and miscellaneous occupations in various departments.

TABLE 34.—*Number of female operatives receiving specific hourly rates of wages, by department and occupation.*

Department and occupation.	Number of female operatives in the woolen and worsted mills in the United States.															
		Receiving an hourly rate of wages of—														
	Total.	75 cents and over.	60 to 74.99 cents.	40 to 59.99 cents.	35 to 39.99 cents.	30 to 34.99 cents.	25 to 29.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 9.99 cents.	6 to 7.99 cents.	Less than 6 cents.
Total	[1] 13,111		1	3	4	17	155	495	540	599	1,197	2,821	4,700	1,965	528	86
Wool-sorting department	120							9	11	18	27	11	22	22		
Wool sorter	38							9	11	18						
Wool sorter, apprentice	43										27	8	8			
Clipper	39											3	14	22		
Wool-scouring department, scouring-machine tender	5											5				
Carding department, worsted	21												12	9		
Card tender	2												2			
Balling-head tender	8												4	4		
Card cleaner	11												6	5		
Carding department, woolen	75											24	45	6		
Card tender	58											18	35	5		
Card cleaner	17											6	10	1		
Combing department (Bradford system)	330										18	112	101	99		
Gill-box tender	237										2	83	67	85		
Balling-machine tender	5												5			
Noble-comb tender	79										16	28	25	10		
Backwash-machine tender	8												4	4		
Top carrier	1											1				
Combing department (French system)	263								26			6	192	39		
Gill-box tender	176								21				130	25		
Balling-machine tender	8												7	1		
French-comb tender	31								5			6	20			
Backwash-machine tender	48												35	13		
Drawing department (Bradford system)	1,019									3	14	467	403	120	12	
Drawing-frame tender	931									3	14	451	367	96		
Doffer	86											16	35	23	12	
Roving carrier	2												1	1		
Drawing department (French system), drawing frame tender	496									5	2	189	244	56		
Frame-spinning department	2,544							2	1	9	418	502	959	540	101	12
Frame spinner	966								1		232	262	277	194		
Doffer	310										1		83	129	87	10
Bobbin setter	24												2	8	12	2
Roving carrier	10												3	7		
Twister	1,113									9	185	210	519	190		
Yarn inspector	121							2				30	75	12	2	

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[1] Exclusive of weavers.

TABLE 34.—*Number of female operatives receiving specific hourly rates of wages, by department and occupation*—Continued.

Department and occupation.	Number of female operatives in the woolen and worsted mills in the United States.															
	Total.	Receiving an hourly rate of wages of—														
		75 cents and over.	60 to 74.99 cents.	40 to 59.99 cents.	35 to 39.99 cents.	30 to 34.99 cents.	25 to 29.99 cents.	20 to 24.99 cents.	18 to 19.99 cents.	16 to 17.99 cents.	14 to 15.99 cents.	12 to 13.99 cents.	10 to 11.99 cents.	8 to 9.99 cents.	6 to 7.99 cents.	Less than 6 cents.
Mule-spinning department, worsted	606	....	....	....	....	....	....	8	....	....	....	135	349	108	6	....
Mule spinner	19	....	....	....	....	....	....	8	....	....	....	11	....	....	....	....
Piecer	344	....	....	....	....	....	....	....	....	....	....	122	222	....	....	....
Doffer	243	....	....	....	....	....	....	....	....	....	....	2	127	108	6	....
Mule-spinning department, woolen, mule spinner	44	....	....	....	....	....	1	1	5	1	6	9	21	....	....	....
Winding department	487	....	....	....	....	....	4	9	4	32	76	110	131	82	38	1
Overseer	2	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....
Winder	482	....	....	....	....	....	4	9	4	32	76	109	130	80	38	....
Bobbin carrier	3	....	....	....	....	....	....	....	....	....	....	....	....	2	....	1
Spooling department	1,325	....	....	....	....	....	1	1	....	34	92	197	739	191	62	8
Overseer	2	....	....	....	....	....	1	....	....	....	....	1	....	....	....	....
Second hand	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Spooler	1,171	....	....	....	....	....	....	....	....	34	87	167	677	147	51	8
Reeler	143	....	....	....	....	....	....	....	....	....	5	29	62	44	3	....
Reel setter	8	....	....	....	....	....	....	....	....	....	....	....	....	....	8	....
Dressing department	145	....	....	....	....	....	1	5	1	8	11	15	104	....	....	....
Second hand	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....
Section hand	4	....	....	....	....	....	....	2	....	1	1	....	....	....	....	....
Dresser tender	33	....	....	....	....	....	1	3	....	4	6	6	13	....	....	....
Sizing beamer	107	....	....	....	....	....	....	....	1	2	4	9	91	....	....	....
Weaving department	[1]663	....	....	....	....	....	32	91	56	69	51	49	64	92	122	37
Section hand	9	....	....	....	....	....	....	9	....	....	....	....	....	....	....	....
Weavers [2]	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Harness fixer	2	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....
Drawer-in	373	....	....	....	....	....	32	79	54	69	51	46	42	....	....	....
Hander-in	274	....	....	....	....	....	....	....	....	....	....	3	22	90	122	37
Tier-in	4	....	....	....	....	....	....	2	2	....	....	....	....	....	....	....
Cloth examiner	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Burling and mending department	2,852	....	....	....	....	1	94	307	326	294	359	619	494	246	85	27
Overseer	21	....	....	....	....	....	2	....	4	2	12	1	....	....	....	....
Second hand	3	....	....	....	....	1	....	....	1	....	....	....	1	....	....	....
Burler	1,358	....	....	....	....	....	3	30	74	97	124	396	354	168	85	27
Mender	1,375	....	....	....	....	....	89	256	225	185	212	210	124	74	....	....
Inspector	95	....	....	....	....	....	....	21	22	10	11	12	15	4	....	....
Finishing department	34	....	....	....	....	....	....	....	3	....	1	13	11	6	....	....
Drying-machine tender	4	....	....	....	....	....	....	....	2	....	....	....	2	....	....	....
Brushing-machine tender	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
Shearing-machine tender	24	....	....	....	....	....	....	....	1	....	....	12	6	5	....	....
Pressing-machine tender	5	....	....	....	....	....	....	....	....	....	....	1	3	1	....	....
Mechanical and general department, general laborer	28	....	....	....	....	....	....	1	....	....	3	4	20	....	....	....
Miscellaneous department [3]	2,054	....	1	3	4	16	22	61	107	126	119	354	789	349	102	1

[1] Exclusive of weavers.

[2] Weavers' earnings are shown in Tables 39 to 42.

[3] Includes packing, waste and shipping departments, and miscellaneous occupations in various departments.

The following summary table is based upon Tables 32, 33, and 34 and shows the distribution of the operatives, exclusive of the weavers, by sex and by the departments in which they were employed:

TABLE 35.—*Number and percentage of operatives in woolen and worsted mills in the United States, by sex and by department.*

Department.	Total.	Males.	Females.	Per cent of total.	
				Males.	Females.
Total	[1] 30,454	17,343	13,111	56.9	43.1
Wool sorting	964	844	120	87.5	12.5
Wool scouring	287	282	5	98.3	1.7
Carding:					
Worsted	366	345	21	94.3	5.7
Woolen	534	459	75	85.9	14.1
Combing:					
Bradford system	1,012	682	330	67.4	32.6
French system	340	77	263	22.6	77.4
Drawing:					
Bradford system	1,420	401	1,019	28.3	71.7
French system	515	19	496	3.7	96.3
Frame spinning	3,547	1,003	2,544	28.3	71.7
Mule spinning:					
Worsted	1,215	609	606	50.1	49.9
Woolen	741	697	44	94.1	5.9
Winding	648	161	487	24.5	75.5
Spooling	1,378	53	1,325	3.8	96.2
Dressing	659	514	145	78.0	22.0
Weaving [1]	1,570	907	663	57.8	42.2
Burling and mending	3,022	170	2,852	5.6	94.4
Finishing	1,508	1,474	34	97.7	2.3
Dyeing	791	791	....	100.0	....
Mechanical and general	2,684	2,656	28	98.9	1.1
Miscellaneous	7,253	5,199	2,054	71.7	28.3

[1] Exclusive of weavers.

Of the 30,454 persons shown above 17,343, or 56.9 per cent, were males and 13,111, or 43.1 per cent, were females. The proportions of the sexes here differ very little from the proportions shown in the other series of tables (see page 954).

The numbers of persons shown for the various departments include only those operatives doing the work that is especially characteristic of the respective departments. A variety of occupations occurring only in the more highly organized establishments and the occupations of the packing, waste, and shipping branches of the mills are grouped together, since a detailed study of the rates of wages for the persons in those occupations would not be significant.

No women were employed in the dyeing department and only a small proportion were engaged in the work of the wool scouring, finishing, worsted carding, woolen mule spinning, and mechanical and general departments. On the other hand, women predominated largely in the spooling, burling and mending, drawing, French combing, winding, and frame spinning departments.

It is interesting to note that over two-thirds (682, or 67.4 per cent) of the operatives in the combing department following the Bradford system were men, while in the French combing department over three-fourths (263, or 77.4 per cent) of the employees were women.

In both branches of the drawing department women predominated largely, but the proportion of women in the department using the French system is much larger than the proportion in the department using the Bradford system, the percentages being 96.3 and 71.7, respectively.

In the worsted mule spinning department the sexes were about evenly represented, but in the woolen mule spinning department the men formed 94.1 per cent of the total number of operatives. In the frame spinning department women formed 71.7 per cent of all the wage-earners.

The following summary table shows the distribution of the operatives, exclusive of weavers, by specified rates of wages:

TABLE 36.—*Number, per cent distribution, and per cent of total of the operatives in woolen and worsted mills in the United States, by sex and by hourly rate of wages.*

Hourly rate of wages.	Total.	Males.	Females.	Per cent distribution.			Per cent of total.	
				Total.	Males.	Females.	Males.	Females.
Total	[1] 30,454	17,343	13,111	100.0	100.0	100.0	56.9	43.1
75 cents and over	33	33	....	0.1	0.2	....	100.0	....
60 to 74.99 cents	60	59	1	0.2	0.3	(2)	98.3	1.7
45 to 59.99 cents	109	106	3	0.4	0.6	(2)	97.2	2.8
35 to 44.99 cents	291	287	4	1.0	1.7	(2)	98.6	1.4
30 to 34.99 cents	468	451	17	1.5	2.6	0.1	96.4	3.6
25 to 29.99 cents	2,004	1,849	155	6.6	10.6	1.2	92.3	7.7
20 to 24.99 cents	2,604	2,109	495	8.6	12.1	3.8	81.0	19.0
18 to 19.99 cents	1,682	1,142	540	5.5	6.6	4.1	67.9	32.1
16 to 17.99 cents	2,635	2,036	599	8.6	11.7	4.6	77.2	22.8
14 to 15.99 cents	4,926	3,729	1,197	16.2	21.5	9.1	75.7	24.3
12 to 13.99 cents	6,007	3,186	2,821	19.7	18.4	21.5	53.0	47.0
10 to 11.99 cents	6,153	1,453	4,700	20.2	8.4	35.9	23.6	76.4
8 to 9.99 cents	2,722	757	1,965	8.9	4.4	15.0	27.8	72.2
6 to 7.99 cents	661	133	528	2.2	0.8	4.0	20.1	79.9
Less than 6 cents	99	13	86	0.3	0.1	0.7	13.1	86.9

[1] Exclusive of weavers.

[2] Less than one-tenth of 1 per cent.

One-fifth of the 30,454 wage earners—6,153, or 20.2 per cent—were paid at least 10 cents but less than 12 cents an hour. The mills in general list their wage rates in cents and fractions of a cent. In this discussion, however, the rates will be quoted in cents, with the understanding that the figure stated includes the range of rates from that amount to that amount and ninety-nine one-hundredths additional. Thus the rate "11 cents" would include rates ranging from 11 to 11.99 cents. Consequently, these 6,153 operatives received from 10 to 11.99 cents an hour.

Almost as many employees—6,007, or 19.7 per cent—received from 12 to 13 cents an hour.

The next largest group—4,926 persons, or 16.2 per cent—received from 14 to 15 cents an hour. These three groups comprise over one-half (56.1 per cent) of the total number of employees considered. The number paid over 16 cents but less than 25 cents an hour was 6,921, or 22.7 per cent, of the total.

The 3,482 operatives receiving less than 10 cents an hour formed 11.4 per cent of the total number, and the 961 employees receiving at least 30 cents an hour formed 3.2 per cent. These two classes receiving the extreme in wages formed 14.6 per cent of the operatives.

More than one-half of the females—7,521, or 57.4 per cent—received 10 cents, but less than 14 cents, an hour. Over one-third—4,700, or 35.9 per cent—of the female operatives were concentrated in the group receiving 10 cents, but less than 12 cents an hour.

Males predominated largely among the operatives receiving 14 cents and over an hour and females predominated largely among those receiving less than 12 cents an hour. More than one-half—3,186, or 53 per cent—of the employees receiving at least 12 cents but less than 14 cents an hour were males; but that proportion is less than the proportion of males (56.9 per cent) engaged in the industry.

Table 32 shows the range of wages for more than 100 occupations. Certain of these occupations are of greater importance than the others when the amount and quality of the product manufactured is concerned. The following table shows the occupations which require experience and upon which efficiency in manufacturing woolen and worsted fabrics mainly depends, and the hourly rates of wages paid to the persons in these occupations:

TABLE 37.—*Distribution of operatives in woolen and worsted mills in the United States for occupations which require experience and upon which efficiency in manufacturing woolen and worsted fabrics mainly depends.*[1]

Department and occupation.	Sex.	Total number.	Hourly rate of wages.													
			35 cents and over.		25 to 34.99 cents.		20 to 24.99 cents.		16 to 19.99 cents.		12 to 15.99 cents.		8 to 11.99 cents.		Less than 8 cents.	
			Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Wool sorting department:																
Wool sorters	Male	470	5	1.1	228	48.5	115	24.5	122	25.9	....	....	....	....	....	....
Do	Female	38	....	....	....	....	9	23.7	29	76.3	....	....	....	....	....	....
Wool scouring department, scouring machine tender	Male	247	....	....	1	0.4	10	4.0	76	30.8	149	60.3	11	4.5	....	....
Carding department, worsted:																
Card tender	do	29	....	....	....	....	....	....	4	13.8	15	51.7	10	34.5	....	....
Card stripper	do	88	....	....	....	....	1	1.1	40	45.5	45	51.1	2	2.3	....	....
Card grinder	do	16	....	....	....	....	4	25.0	10	62.5	2	12.5	....	....	....	....
Carding department, woolen:																
Card tender	do	136	....	....	....	....	....	....	3	2.2	89	65.4	44	32.4	....	....
Do	Female	58	....	....	....	....	....	....	....	....	18	31.0	40	69.0	....	....
Card stripper	Male	140	....	....	....	....	....	....	18	12.9	122	87.1	....	....	....	....
Card grinder	do	15	....	....	....	....	....	....	6	40.0	8	53.3	1	6.7	....	....
Combing department (Bradford system):																
Gill box tender	do	257	....	....	1	0.4	....	....	3	1.2	176	68.5	77	29.9	....	....
Do	Female	237	....	....	....	....	....	....	....	....	85	35.9	152	64.1	....	....
Noble comb tender.	Male	150	....	....	....	....	....	....	26	17.3	122	81.4	2	1.3	....	....
Do	Female	79	....	....	....	....	....	....	....	....	44	55.7	35	44.3	....	....
Combing department (French system):																
Gill box tender	Male	21	....	....	....	....	....	....	1	4.8	20	95.2	....	....	....	....
Do	Female	176	....	....	....	....	....	....	21	11.9	....	....	155	88.1	....	....
French comb tender.	Male	10	....	....	....	....	....	....	....	....	10	100.0	....	....	....	....
Do	Female	31	....	....	....	....	....	....	5	16.1	6	19.4	20	64.5	....	....
Drawing department (Bradford system):																
Drawing-frame tender.	Male	237	....	....	....	....	....	....	4	1.7	154	65.0	79	33.3	....	....
Do	Female	931	....	....	....	....	....	....	3	.3	465	50.0	463	49.7	....	....

TABLE 37.—*Distribution of operatives in woolen and worsted mills in the United States for occupations which require experience and upon which efficiency in manufacturing woolen and worsted fabrics mainly depends*—Continued.

Department and occupation.	Sex.	Total number.	Hourly rate of wages.													
			35 cents and over.		25 to 34.99 cents.		20 to 24.99 cents.		16 to 19.99 cents.		12 to 15.99 cents.		8 to 11.99 cents.		Less than 8 cents.	
			Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Drawing department (French system), drawing-frame tender	Female	496	....	....	....	....	....	....	5	1.0	191	38.5	300	60.5	....	....
Frame-spinning department:																
Frame spinner	Male	233	....	....	....	....	....	....	4	1.7	220	94.4	9	3.9	....	....
Do	Female	966	....	....	....	....	....	....	1	.1	494	51.1	471	48.8	....	....
Twister	Male	48	....	....	....	....	....	....	1	2.1	34	70.8	13	27.1	....	....
Do	Female	1,113	....	....	....	....	....	....	9	.8	395	35.5	709	63.7	....	....
Mule-spinning department, worsted:																
Mule spinner	Male	190	5	2.6	88	46.3	51	26.9	24	12.6	22	11.6	....	....	....	....
Do	Female	19	....	....	....	....	8	42.1	....	....	11	57.9	....	....	....	....
Mule-spinner's helper.	Male	65	....	....	....	....	20	30.8	19	29.2	19	29.2	7	10.8	....	....
Joiner	...do	83	....	....	29	35.0	46	55.4	5	6.0	3	3.6	....	....	....	....
Piecer	...do	74	....	....	....	....	....	....	6	8.1	56	75.7	12	16.2	....	....
Do	Female	344	....	....	....	....	....	....	....	....	122	35.5	222	64.5	....	....
Mule-spinning department, woolen:																
Mule spinner	Male	418	....	....	111	26.6	161	38.5	127	30.4	19	4.5	....	....	....	....
Do	Female	44	....	....	1	2.3	1	2.3	6	13.6	15	34.1	21	47.7	....	....
Winding department:																
Winder	Male	68	....	....	....	....	4	5.9	10	14.7	27	39.7	26	38.2	1	1.5
Do	Female	482	....	....	4	.8	9	1.9	36	7.4	185	38.4	210	43.6	38	7.9
Spooling department:																
Spooler	Male	29	....	....	....	....	....	....	....	....	15	51.7	14	48.3	....	....
Do	Female	1.171	....	....	....	....	....	....	34	2.9	254	21.7	824	70.4	59	5.0
Dressing department:																
Dresser tender	Male	352	1	.3	190	54.0	121	34.4	23	6.5	15	4.2	2	.6	....	....
Do	Female	33	....	....	1	3.0	3	9.1	4	12.1	12	36.4	13	39.4	....	....
Weaving department:[1]																
Loom fixer	Male	432	1	.2	335	77.6	65	15.0	31	7.2	....	....	....	....	....	....
Drawer-in	...do	20	....	....	5	25.0	4	20.0	7	35.0	2	10.0	2	10.0	....	....
Do	Female	373	....	....	32	8.6	79	21.2	123	33.0	97	26.0	42	11.2	....	....
Cloth percher	Male	106	....	....	15	14.1	59	55.7	25	23.6	6	5.7	1	.9	....	....
Cloth examiner	...do	67	....	....	2	3.0	23	34.3	40	59.7	2	3.0	....	....	....	....
Burling and mending department:																
Burler	Female	1,358	....	....	3	0.2	30	2.2	171	12.6	520	38.3	522	38.4	112	8.3
Mender	...do	1,375	....	....	89	6.5	256	18.6	410	29.8	422	30.7	198	14.4	....	....
Inspector	Male	124	1	0.8	43	34.7	44	35.5	15	12.1	11	8.9	10	8.0	....	....
Do	Female	95	....	....	....	....	21	22.1	32	33.7	23	24.2	19	20.0	....	....
Finishing department:																
Finishing machine tender.[2]	Male	1.230	2	0.2	28	2.3	38	3.1	257	20.9	810	65.8	95	7.7	....	....
Do[1]	Female	34	....	....	....	....	....	....	3	8.8	14	41.2	17	50.0	....	....
Dyeing department, dyehouse hand.	Male	690	2	0.3	6	0.9	16	2.3	177	25.7	464	67.2	25	3.6	....	....

[1] Exclusive of weavers.

[2] Includes tenders of washing, fulling, crabbing, gigging, drying, teaseling, brushing, shearing, and pressing machines.

TABLE 37.—*Distribution of operatives in woolen and worsted mills in the United States for occupations which require experience and upon which efficiency in manufacturing woolen and worsted fabrics mainly depends*—Continued.

Department and occupation.	Sex.	Total number.	Hourly rate of wages.													
			35 cents and over.		25 to 34.99 cents.		20 to 24.99 cents.		15 to 19.99 cents.		12 to 15.99 cents.		8 to 11.99 cents.		Less than 8 cents.	
			Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Mechanical and general department:																
Machinist	Male	326	6	1.9	122	37.4	150	46.0	48	14.7	....	....	....	....	....	....
Pipe fitter	do	80	3	3.7	18	22.5	26	32.5	33	41.3	....	....	....	....	....	....
Carpenter	do	222	8	3.6	81	36.5	133	59.9	....	....	....	....	....	....	....	....
Electrician	do	57	6	10.5	23	40.4	28	49.1	....	....	....	....	....	....	....	....
Engineer	do	85	16	18.8	35	41.2	31	36.5	3	3.5	....	....	....	....	....	....
Fireman	do	233	....	....	6	2.6	72	30.9	133	57.1	22	9.4	....	....	....	....
Laborer	do	832	....	....	4	0.5	22	2.6	201	24.2	569	68.4	35	4.2	1	0.1
Overseers		642	303	47.2	226	35.2	61	9.5	29	4.5	22	3.4	1	0.2	....	....
Sorting department.	Male	31	18	58.1	10	32.2	3	9.7	....	....	....	....	....	....	....	....
Scouring department.	do	19	7	36.8	9	47.4	3	15.8	....	....	....	....	....	....	....	....
Carding department, worsted.	do	14	11	78.6	2	14.3	1	7.1	....	....	....	....	....	....	....	....
Carding department, woolen.	do	43	24	55.8	14	32.5	2	4.7	2	4.7	1	2.3	....	....	....	....
Combing department (Bradford system).	do	18	9	50.0	8	44.4	1	5.6	....	....	....	....	....	....	....	....
Combing department (French system).	do	18	9	50.0	7	38.9	1	5.5	1	5.6	....	....	....	....	....	....
Drawing department (Bradford system).	do	7	4	57.1	2	28.6	1	14.3	....	....	....	....	....	....	....	....
Drawing department (French system).	do	2	1	50.0	1	50.0	....	....	....	....	....	....	....	....	....	....
Frame spinning department.	do	50	14	28.0	25	50.0	9	18.0	1	2.0	1	2.0	....	....	....	....
Mule spinning department, worsted.	do	22	18	81.8	4	18.2	....	....	....	....	....	....	....	....	....	....
Mule spinning department, woolen.	do	26	14	53.8	12	46.2	....	....	....	....	....	....	....	....	....	....
Winding department.	do.[1]	11	2	18.2	6	54.5	1	9.1	....	....	1	9.1	1	9.1	....	....
Spooling department.	do.[2]	11	....	....	6	54.5	3	27.3	....	....	2	18.2	....	....	....	....
Dressing department.	do	30	16	53.3	13	43.3	....	....	1	3.4	....	....	....	....	....	....
Weaving department.	do	68	40	58.8	18	26.5	10	14.7	....	....	....	....	....	....	....	....
Burling and mending department.	do	26	9	34.6	15	57.7	2	7.7	....	....	....	....	....	....	....	....
Do	Female	21	....	....	2	9.5	....	....	6	28.6	13	61.9	....	....	....	....
Finishing department.	Male	127	50	39.4	46	36.2	18	14.2	12	9.4	1	0.8	....	....	....	....
Dyeing department.	do	43	32	74.5	4	9.3	1	2.3	5	11.6	1	2.3	....	....	....	....
Mechanical department.	do	55	25	45.5	22	40.0	5	9.1	1	1.8	2	3.6	....	....	....	....

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[1] In the winding department, 2 of the overseers were women, 1 in the group from 12 to 16 cents, and 1 from 8 to 12 cents.

[2] In the spooling department, 2 of the overseers were women, 1 in the group from 25 to 35 cents, and 1 from 12 to 16 cents.

In the comments on the distribution of wage-earners according to the rate groups shown in this table, the fact should be considered that while operatives are reported for a certain earnings group, they may in reality be concentrated at one rate in that group. For instance, 21 spinners in the woolen mule spinning department are shown for the earnings group "8 to 11 cents" while all of them received at least 10 cents an hour. The more detailed rates may be found in Table 32.

The largest proportion of employees receiving at least 35 cents an hour naturally occurred in the case of the overseers. For this occupation not only a knowledge of the work is required, but also more or less executive ability. Of the 642 overseers, 303, or 47.2 per cent, were paid at least 35 cents an hour. In a few other occupations some operatives were paid that amount. The occupations with the largest proportions of operatives receiving such rates were engineers, with 18.8 per cent in this group, and electricians, with 10.5 per cent.

The carpenters and electricians were the only classes of operatives who did not receive a rate lower than 20 cents an hour. Many wage-earners in other occupations received rates above 20 cents an hour, but in each case some of the employees for the occupation were paid at much lower rates.

The range of wages was from 8 to 34 cents an hour for card grinders, gill-box tenders in the combing department following the Bradford system, woolen mule spinners, menders, drawers-in, and cloth perchers.

The range was less, being from 8 to 19 cents an hour, for card tenders, gill-box tenders in the French combing department, Noble comb tenders, French comb tenders, drawing-frame tenders, frame spinners, twisters, and piecers.

A few occupations are shown with operatives receiving less than 8 cents an hour. Of these the burlers were most numerous, 112, or 8.3 per cent, of the persons in this work having received this low rate. Probably these persons were new to the work and would be classed as learners.

The rates of wages paid to wool sorters range from 16 cents per hour to the highest group shown in this table—35 cents and over. By consulting Table 32 it will be seen that no wool sorter received so much as 45 cents per hour. No female wool sorter received so much as 25 cents an hour. Almost one-half of the males in this occupation—228, or 48.5 per cent—were paid from 25 to 34 cents, while three-fourths of the females—29, or 76.3 per cent—were paid from 16 to 19 cents.

While the proportion of women wool sorters is small, where they have been employed it is recognized that their deftness of touch enables them to detect the differences in the finer grades of wool and sort with great precision. They are, however, unable to sort the coarser grades of wool as rapidly as the men, because they lack the physical strength required to handle large quantities of wool.

The rates of wages of the scouring machine tenders were lower than those of the wool sorters. Less skill, however, is required of the wool scourers than of the wool sorters. Three-fifths of the wool scourers—149, or 60.3 per cent—were paid at least 12 cents but less than 16 cents an hour, and about half as many—76, or 30.8 per cent—were paid at least 16 cents but less than 20 cents an hour.

Practically all of the card tenders in the woolen carding department received 8 cents but less than 16 cents an hour. About two-thirds of the male carders (65.4 per cent) were paid from 12 to 15 cents an hour, while a larger proportion of the female carders (69 per cent) received less than 12 cents an hour.

In the worsted carding department one-half of the card tenders, (51.7 per cent) and a similar proportion (51.1 per cent) of the card strippers were paid at least 12 cents but less than 16 cents an hour.

Almost all of the male gill-box tenders in the French combing department (95.2 per cent) were paid at least 12 cents but less than 16 cents an hour, and two-thirds (68.5 per cent) of those in the combing department using the Bradford system were paid at that rate, while about three-tenths (29.9 per cent) were paid at least 8 cents but less than 12 cents an hour. Of the female gill-box tenders about one-third (35.9 per cent) of those in the department using the Bradford system were paid 12 cents but less than 16 cents an hour, while over one-tenth (11.9 per cent) of such operatives in the French department received at least 16 cents but less than 20 cents an hour. The larger proportion of female gill-box tenders in each branch of the combing department were paid less than 12 cents but more than 8 cents an hour.

The range of .rates for female comb tenders was greater in the combing department using the French system than in the branch using the Bradford system, being from 8 to 19 cents for French comb tenders and from 8 to 15 cents for Noble comb tenders. A greater proportion of the operatives in the French department, however, received the lowest rates—64.5 per cent being paid less than 12 cents an hour—while in the English department only 44.3 per cent were paid such low wages.

The range of rates is the same for the drawing frame tenders in the two branches of the drawing department. In the drawing department using the Bradford system, however, the largest proportion of male operatives in this occupation (154, or 65 per cent) received at least 12 cents but less than 16 cents an hour, and the females were almost equally divided between that group and the group receiving 8 cents but less than 12 cents an hour (465, or 50 per cent, and 463, or 49.7 per cent, being reported, respectively, for these groups), while in the drawing department using the French system three-fifths of the females employed (300, or 60.5 per cent) received 8 cents but less than 12 cents an hour. In the French drawing department there were only 6 male drawing frame tenders, and percentages based on such a small number are not significant and consequently are not given.

The spinners in the mule spinning departments were paid more than the frame spinners. No frame spinner received so much as 20 cents an hour and the majority received only from 12 to 15 cents an hour. Almost one-half of the female frame spinners (471, or 48.8 per cent) received less than 12 cents an hour, although none received less than 8 cents an hour.

Five men in the worsted mule spinning department were paid at least 35 cents an hour, and 88, or 46.3 per cent, received less than that amount but more than 25 cents. In the woolen mule spinning department 111, or 26.6 per cent, of the male mule spinners were paid at least 25 cents but less than 35 cents an hour, and 161, or 38.5 per cent, were paid at least 20 cents but less than 25 cents an hour.

The majority of the female mule spinners were paid less than 16 cents an hour, 57.9 per cent of those in the worsted branch and 81.8 per cent of those in the woolen branch having been paid at that rate.

Over three-fourths of the winders received 8 cents but less than 16 cents an hour. Some received less than 8 cents an hour, and some received 16 cents or more.

The rates for the spoolers are the lowest in this group of occupations upon which efficiency in the manufacture of woolen and worsted goods mainly depends. Practically all of the spoolers are women and girls, and 824, or 70.4 per cent, of them were paid from 8 to 11 cents an hour; 254, or 21.7 per cent, were paid from 12 to 15 cents; and 59, or 5 per cent, received less than 8 cents. The highest paid group of spoolers (34, or 2.9 per cent) received from 16 to 19 cents an hour.

The range in the rates of wages for dresser tenders is from 8 cents an hour for the lowest rate to 35 cents and over for the highest. The concentration for the males occurs in the group paid from 25 to 34 cents an hour, 190, or 54 per cent, of the men engaged in this work being reported for those rates. In the case of the female dresser tenders three-fourths, 75.8 per cent, received from 8 to 15 cents an hour.

In the weaving department all of the loom fixers and cloth perchers are men. The loom fixers are among the operatives receiving the highest rates. Over three-fourths, 335, or 77.6 per cent, were paid at least 25 cents but less than 35 cents an hour. More than one-half of the cloth perchers, 59, or 55.7 per cent, were paid 20 cents but less than 25 cents an hour. Almost one-fourth, 25, or 23.6 per cent, were paid 16 cents but less than 20 cents an hour.

Practically all of the drawers-in are females. Their rates vary considerably, ranging from 8 cents to 34 cents an hour. About one-third, 123, or 33 per cent, were paid from 16 to 19 cents an hour; 97, or 26 per cent, from 12 to 15 cents; 79, or 21.2 per cent, from 20 to 24 cents; 42, or 11.2 per cent, from 8 to 11 cents; and 32, or 8.6 per cent, from 25 to 34 cents.

Most of the burlers and all of the menders are females. Both of these occupations require careful work. The work of the menders especially demands great skill, since the perfection of the product depends largely on the character of the mending. In the weaving many breaks occur in the yarn, and knots and lumps in the fabric are the result, and it is the duty of the burlers and menders to rectify these faults. The menders must put in new threads in place of the defective threads left in the weaving and in place of the knots and lumps removed by the burlers. This weaving by hand must be skillfully done and care must be taken to use threads of the right color and quality and to follow the design of the weaving.

In addition to employing burlers and menders in the mill, several establishments have some of the burling and mending done by contractors who have at their command especially skilled operatives.

The rates of wages paid to the menders in the mills range from 8 cents to 29 cents, as shown by the basic table. More than one-half, 755, or 54.9 per cent, were paid over 16 cents an hour, and only 198, or

14.4 per cent, were paid less than 12 cents an hour. Two hundred and four, or 15 per cent, of the female burlers, received at least 16 cents an hour, and 112, or 8.3 per cent, received less than 8 cents an hour. The remaining 1,042 females engaged in this work were divided almost equally between the rate groups 12 to 15 cents and 8 to 11 cents.

The work of the inspectors in the burling and mending department is of great importance also. Over two-thirds of the men engaged in this work, 87, or 70.2 per cent, received from 20 to 34 cents an hour, and one-third of the women, 32, or 33.7 per cent, were paid from 16 to 19 cents.

The finishing machines are usually attended by men, 1,230 out of 1,264 of the machine tenders being males. About two-thirds of the males engaged in this occupation, 810, or 65.8 per cent, were paid from 12 to 15 cents an hour for their work.

All of the dyehouse hands are males. The work of dyeing is important and requires skill and some of the dyers are relatively well paid. Two-thirds of the dyehouse hands, 464, or 67.2 per cent, received from 12 to 15 cents an hour, and one-fourth, 177, or 25.7 per cent, were paid from 16 to 19 cents an hour.

While the employees of the mechanical and general departments do not contribute directly to the production of the woolen and worsted goods manufactured in the mills, their work plays an important part in the general efficiency of the mill. A good machinist or carpenter can do much to facilitate the work of the operatives on the various machines. It is the duty of such employees to keep the machines in such good condition that there need be no delay for repairs, and no time need be wasted because of poor operation on the part of the machines.

Frequently the carpenters and other mechanical workmen receive a lower rate of wages in the mill than they could command outside of the mill, but the mill furnishes regular employment, and probably the earnings of the employee for a year's service in the mill are greater than the earnings of similar workmen on the outside for a like time.

The contrasts in wages referred to above are summarized in the following table, which presents, in the order of highest earnings, the occupations in which three-fourths or more of the operatives earned 16 cents per hour and over, and also those occupations in which the hourly earnings of three-fourths or more of the operatives were less than 20 cents:

TABLE 38.—*Distribution of operatives in woolen and worsted mills in the United States, by sex and by earnings groups, for occupations in which 75 per cent or more of the operatives were paid 16 cents an hour and over and those in which 75 per cent or more were paid less than 20 cents an hour.*

OCCUPATIONS IN WHICH 75 PER CENT OR MORE OF THE OPERATIVES RECEIVED 16 CENTS AN HOUR AND OVER.

Occupation.	Sex.	Total number.	Per cent of total in each occupation receiving per hour—						
			35 cents and over.	25 to 34.99 cents.	20 to 24.99 cents.	16 to 19.99 cents.	12 to 15.99 cents.	8 to 11.99 cents.	Less than 8 cents.
Loom fixer	Male	432	0.2	77.6	15.0	7.2	....	....	....
Engineer	...do	85	18.8	41.2	36.5	3.5	....	....	....
Dresser tender	...do	352	0.3	54.0	34.4	6.5	4.2	0.6	....
Electrician	...do	57	10.5	40.4	49.1	....	....	....	....
Wool scourer	...do	470	1.1	48.5	24.5	25.9	....	....	....
Do	Female	38	....	....	23.7	76.3	....	....	....
Mule spinner, worsted	Male	190	2.6	46.3	26.9	12.6	11.6	....	....
Carpenter	...do	222	3.6	36.5	59.9	....	....	....	....
Machinist	...do	326	1.9	37.4	46.0	14.7	....	....	....
Inspector (cloth)	...do	124	0.8	34.7	35.5	12.1	8.9	8.0	....
Joiner, mule spinning	...do	83	....	35.0	55.4	6.0	3.6	....	....
Mule spinner, woolen	...do	418	....	26.6	38.5	30.4	4.5	....	....
Pipe fitter	...do	80	3.7	22.5	32.5	41.3	....	....	....
Weaver, woolen	...do	847	....	8.3	30.4	39.1	18.3	3.9	....
Do	Female	545	....	6.8	29.7	40.0	21.5	2.0	....
Weaver, worsted	Male	1,400	0.1	23.5	47.9	21.5	6.5	0.5	....
Do.[1]	Female	1,782	....	3.9	17.7	38.1	31.4	8.9	....
Cloth percher	Male	106	....	14.1	55.7	23.6	5.7	0.9	....
Cloth examiner	...do	67	....	3.0	34.3	59.7	3.0	....	....
Fireman	...do	233	....	2.6	30.9	57.1	9.4	....	....

OCCUPATIONS IN WHICH 75 PER CENT OR MORE OF THE OPERATIVES RECEIVED LESS THAN 20 CENTS AN HOUR.

Occupation.	Sex.	Total number.	35 cents and over.	25 to 34.99 cents.	20 to 24.99 cents.	16 to 19.99 cents.	12 to 15.99 cents.	8 to 11.99 cents.	Less than 8 cents.
Mender[2]	Female	1,375	....	6.5	18.6	29.8	30.7	14.4	....
Drawer in[3]	...do	373	....	8.6	21.2	33.0	26.0	11.2	....
Card stripper, worsted	Male	88	....	....	1.1	45.5	51.1	2.3	....
Scouring machine tender	...do	247	....	0.4	4.0	30.8	60.3	4.5	....
Dyehouse hand	...do	690	0.3	0.9	2.3	25.7	67.2	3.6	....
Laborer	...do	832	....	0.5	2.6	24.2	68.4	4.2	0.1
Dresser tender	Female	33	....	3.0	9.1	12.1	36.4	39.4	....
Burler	...do	1,358	....	0.2	2.2	12.6	38.3	38.4	8.3
Mule spinner, woolen	...do	44	....	2.3	2.3	13.6	34.1	47.7	....
Card stripper, woolen	Male	140	....	....	....	12.9	87.1	....	....
Finishing-machine tender	...do	1,230	0.2	2.3	3.1	20.9	65.8	7.7	....
Do	Female	34	....	....	....	8.8	41.2	50.0	....
Winder	Male	68	....	....	....	14.7	39.7	38.2	1.5
Do	Female	482	....	0.8	1.9	7.4	38.4	43.6	7.9
Gill box tender (French system).	Male	21	....	....	....	4.8	95.2	....	....
Do	Female	176	....	....	....	11.9	....	88.1	....
Drawing frame tender (French system).	...do	496	....	....	....	1.0	38.5	60.5	....
Twister	Male	48	....	....	....	2.1	70.8	27.1	....
Do	Female	1,113	....	....	....	0.8	35.5	63.7	....
Drawing frame tender (Bradford system).	Male	237	....	....	....	1.7	65.0	33.3	....
Do	Female	931	....	....	....	0.3	50.0	49.7	....
Frame spinner	Male	233	....	....	....	1.7	94.4	3.9	....
Do	Female	966	....	....	....	0.1	51.1	48.8	....
Noble comb tender	Male	150	....	....	....	17.3	81.4	1.3	....
Do	Female	79	....	....	....	....	55.7	44.3	....
Piecer	Male	74	....	....	....	8.1	75.7	16.2	....
Do	Female	344	....	....	....	....	35.5	64.5	....
Card tender, woolen	Male	136	....	....	....	2.2	65.4	32.4	....
Do	Female	58	....	....	....	....	31.0	69.0	....
Gill box tender (Bradford system).	Male	257	....	0.4	....	1.2	68.5	29.9	....
Do	Female	237	....	....	....	....	35.9	64.1	....
Spooler	Male	29	....	....	....	....	51.7	48.3	....
Do	Female	1,171	....	....	....	2.9	21.7	70.4	5.0

[1] In this group only 59.7 per cent earned 16 cents per hour and over.
[2] In this group only 74.9 per cent earned less than 20 cents an hour.
[3] In this group only 70.2 per cent earned less than 20 cents an hour.

For the group of occupations in which operatives received an hourly rate of 16 cents or more, the order of the occupations is based upon the proportion of operatives receiving 25 cents or more an hour. Thus 77.8 per cent of the loom fixers were paid at least 25 cents an hour; 60 per cent of the engineers were paid at those rates; 54.3 per cent of the dresser tenders, etc.

In the case of the occupations in which the operatives received an hourly rate of less than 20 cents, the basis for the order is the proportion of operatives receiving less than 15 cents an hour.

Wherever an occupation is shown for both sexes, the rates for both sexes are given, even if only one sex would naturally follow in the given order. This method of presentation is followed in order to show the differences in the rates paid to males and those paid to females in the same occupation.

The percentages printed in heavy type show the concentration of three-fourths or more of the operatives in the groups indicated.

EARNINGS OF WEAVERS.

In this investigation by the Tariff Board the first opportunity in the history of the industry in the United States has been afforded for securing as exact a knowledge of the amount a weaver earns per hour as of that earned by other mill employees working at fixed rates per hour.

At page 1,045 of this report, under the title of "Efficiency of American weavers," a detailed explanation is given of the system in use in the woolen and worsted mills of the United States regulating the payment of weavers. It is shown that the amount of money paid each week to the weaver as given on the pay rolls is not the result of the actual number of yards woven in the hours reported as having been worked and at the weaving piece price per yard. Many establishments keep no record whatever of the hours each day spent by the weaver in the mill. For these and the reasons stated in detail at page 1,045, the exact production of the weaver during the actual number of hours worked, with the earnings at the piece price per yard, are not known by the mill officials nor by the weaver. The method generally followed in order to obtain a basis for the presentation of the earnings of weavers is to copy the amounts credited to each weaver for two or more weeks. An hourly rate of pay is derived by dividing the total amount paid to the weaver by the number of hours the weaver was in the mill or by an estimate of the number of hours in the mills where no record is kept.

In obtaining data concerning the earnings of weavers, the agents of the Tariff Board used a special loom card and secured an exact record of the number of yards woven, the time worked, and the weaving price per yard, with other details relating to each fabric. Having such a record for each loom, the exact earnings per hour were readily computed. It should be understood that the rates per hour, obtained in this manner, are based on the time the weaver was employed in production, and his earnings are based on the production only, as he is not paid anything for idle time waiting in the mill. The weaver's productive capacity and earnings cease when the loom stops.

Weavers lose time and opportunity to work by having to wait for warps, filling, and repairs of loom, as well as on account of frequent industrial depressions and the semiseasonal character of the industry.

The following tables for woolen and worsted weavers show the number and percentage of males and females earning specified rates per hour upon the basis of actual weaving time on yardage at regular piece rates per yard, including the ordinary stoppage time of the looms to tie broken ends and change bobbins, etc., but not including the idle time waiting for warps, filling, or loom fixers:

TABLE 39.—*Number and percentage of weavers weaving worsted goods in the United States and receiving specified rates based upon actual weaving time on yardage at regular piece rates per yard, including ordinary stoppages of loom.*

Earnings per hour.	Total.		Males.		Females.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Total	3,182	100.0	1,400	44.0	1,782	56.0
10 cents but less than 11 cents	65	2.05	4	0.29	61	3.42
11 cents but less than 12 cents	100	3.14	3	0.22	97	5.44
12 cents but less than 13 cents	117	3.68	15	1.07	102	5.72
13 cents but less than 14 cents	158	4.97	14	1.00	144	8.08
14 cents but less than 15 cents	183	6.75	27	1.93	156	8.76
15 cents but less than 16 cents	192	6.04	35	2.50	157	8.81
16 cents but less than 17 cents	232	7.29	52	3.71	180	10.10
17 cents but less than 18 cents	258	8.11	64	4.51	194	10.89
18 cents but less than 19 cents	236	7.42	77	5.50	159	8.92
19 cents but less than 20 cents	254	7.98	108	7.72	146	8.19
20 cents but less than 21 cents	226	7.10	115	8.21	111	6.24
21 cents but less than 22 cents	212	6.66	142	10.14	70	3.93
22 cents but less than 23 cents	231	7.26	165	11.79	66	3.71
23 cents but less than 24 cents	183	5.75	140	10.00	43	2.41
24 cents but less than 25 cents	135	4.24	109	7.79	26	1.46
25 ceuts but less than 26 cents	100	3.14	70	5.00	30	1.68
26 cents but less than 27 cents	86	2.70	65	4.64	21	1.18
27 cents but less than 28 cents	64	2.01	60	4.29	4	0.22
28 cents but less than 29 cents	58	1.82	52	3.71	6	0.34
29 cents but less than 30 cents	50	1.57	45	3.21	5	0.28
30 cents but less than 31 cents	26	0.82	24	1.71	2	0.11
31 cents but less than 32 cents	8	0.25	6	0.43	2	0.11
32 cents but less than 33 cents	3	0.10	3	0.22	....	....
33 cents but less than 34 cents	1	0.03	1	0.07	....	....
34 cents but less than 35 cents	2	0.06	2	0.14	....	....
35 cents or over	2	0.06	2	0.14	....	....

Average earnings per hour:	
Males	$0.2224
Females	.1717
All weavers	.1971

TABLE 40.—*Number and percentage of weavers weaving woolen goods in the United States and receiving specified rates based upon actual weaving time on yardage at regular piece rates per yard, including ordinary stoppages of loom.*

Earnings per hour.	Total.		Males.		Females.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Total	1,392	100.0	847	60.8	545	39.2
10 cents but less than 11 cents	10	0.72	5	0.59	5	0.92
11 cents but less than 12 cents	34	2.44	28	3.31	6	1.10
12 cents but less than 13 cents	49	3.52	30	3.54	19	3.49
13 cents but less than 14 cents	56	4.02	31	3.66	25	4.59
14 cents but less than 15 cents	59	4.24	31	3.66	28	5.14
15 cents but less than 16 cents	108	7.76	63	7.44	45	8.25
16 cents but less than 17 cents	106	7.61	61	7.20	45	8.25
17 cents but less than 18 cents	139	9.99	82	9.68	57	10.46
18 cents but less than 19 cents	144	10.34	92	10.86	52	9.54
19 cents but less than 20 cents	160	11.49	96	11.33	64	11.74
20 cents but less than 21 cents	121	8.69	73	8.62	48	8.81
21 cents but less than 22 cents	96	6.90	55	6.49	41	7.52
22 cents but less than 23 cents	84	6.03	56	6.61	28	5.14
23 cents but less than 24 cents	69	4.96	38	4.49	31	5.69
24 cents but less than 25 cents	50	3.59	36	4.25	14	2.57
25 cents but less than 26 cents	37	2.66	28	3.31	9	1.65
26 cents but less than 27 cents	32	2.30	19	2.24	13	2.39
27 cents but less than 28 cents	15	1.08	9	1.06	6	1.10
28 cents but less than 29 cents	9	0.65	7	0.83	2	0.37
29 cents but less than 30 cents	10	0.72	6	0.71	4	0.73
30 cents but less than 31 cents						
31 cents but less than 32 cents	3	0.22			3	0.55
32 cents but less than 33 cents	1	0.07	1	0.12		
33 cents but less than 34 cents						
34 cents but less than 35 cents						
35 cents and over						

Average earnings per hour:	
Males	$0.1912
Females	.1875
All weavers	.1904

The following summary tables for worsted and woolen weavers show the number and percentage of males and females earning the rates per hour within the specified groups:

TABLE 41.—*Number and percentage of worsted weavers in the United States, by specified rates of earnings per hour and by sex.*

Rates per hour.	Males.		Females.		Total.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Total	1,400	100.0	1,782	100.0	3,182	100.0
10 cents, but less than 15 cents	63	4.5	560	31.4	623	19.6
15 cents, but less than 20 cents	336	24.0	836	46.9	1,172	36.9
20 cents, but less than 25 cents	671	47.9	316	17.8	987	31.0
25 cents, but less than 30 cents	292	20.9	66	3.7	358	11.2
30 cents and over	38	2.7	4	0.2	42	1.3

TABLE 42.—*Number and percentage of woolen weavers in the United States, by specified rates of earnings per hour and by sex.*

Rates per hour.	Males.		Females.		Total.	
	Number.	Per cent of total.	Number.	Per cent of total.	Number.	Per cent.
Total	847	100.0	545	100.0	1,392	100.0
10 cents but less than 15 cents	125	14.8	83	15.2	208	14.9
15 cents but less than 20 cents	394	46.5	263	48.2	657	47.2
20 cents but less than 25 cents	258	30.5	162	29.7	420	30.2
25 cents but less than 30 cents	69	8.1	34	6.2	103	7.4
30 cents and over	1	0.1	3	0.6	4	0.3

The detailed and summary tables for worsted weavers by sex show that of the total of 3,182 worsted weavers, 1,400, or 44 per cent, were males and 1,782, or 56 per cent, were females.

Nine hundred and sixty-three, or 68.8 per cent, of the male weavers, and 382, or 21.4 per cent of the females, earned 20 cents, but less than 30 cents, per hour, or at the rates of $12 to $18 for 60 hours' work. Three hundred and ninety-nine, or 28.5 per cent of the male weavers, and 1,396, or 78.3 per cent of the female weavers, earned 10 cents per hour and over, but less than 20 cents, or at the rates of $6 to $11.99 for 60 hours' work. The detailed table shows that 4 males and 61 females earned 10 cents, but less than 11 cents, per hour, and that 63 males, or 4.5 per cent, earned less than 15 cents an hour, while 560 females, or 31.48 per cent, earned less than 15 cents an hour. In the next higher group 336 males, or 24 per cent, and 836 females, or 46.9 per cent, earned 15 cents, but less than 20 cents, an hour.

The fact that this table shows the earnings of so large a proportion of females to be lower than the earnings of more than two-thirds of the males while elsewhere the efficiency of worsted female weavers is shown to be greater than the males in 9 of the 18 establishments seems contradictory. In most of the establishments, however, where the efficiency of female weavers was greater than that of the males, the number of females was small. It was also found that many of the female weavers were weaving low-price fabrics, for which earnings would be low, although their relative efficiency might be greater than that of the males. In two worsted mills, where the average earnings of weavers were low, 308 looms were operated by males and 2,853 looms were operated by females. In both mills the average efficiency was less than 70 per cent, but the females in one of the mills had an efficiency one-half of 1 per cent higher than that of the males and in the other the female efficiency exceeded that of the males by 2½ per cent. In those mills the great majority of the weavers did not earn over $8 per week.

The detailed and summary table for woolen weavers, by sex, shows that of the total of 1,392 woolen weavers 847, or 60.8 per cent, were males and 545, or 39.2 per cent, were females. Three hundred and twenty-seven, or 38.6 per cent, of the male weavers and 196, or 36.0 per cent, of the females earned 20 cents, but less than 30 cents, per hour, or at the rates of $12 to $18 per 60-hour week. Five hundred and nineteen, or 61.3 per cent, of the male weavers and 346, or 63.5 per cent, of the female weavers earned 10 cents per hour and over, but less than

20 cents, or at the rates of $6 to $11.99 for 60 hours' work. The detailed table shows that there were but 10 weavers, 5 male and 5 female, who earned 10 cents an hour, and 125 males and 83 females, or 14.9 per cent of the total number of woolen weavers, who earned less than 15 cents per hour.

A comparison of the earnings of the woolen weavers with the earnings of the worsted weavers shows that the proportion of male weavers earning 20 cents, but less than 30 cents, an hour was greater for the worsted weavers than for the woolen weavers, the percentages being 68.8 and 38.7, respectively. For the females the reverse was the case, as 36.0 per cent of the woolen and 21.4 per cent of the worsted weavers earned 20 cents, but less than 30 cents, an hour.

In some establishments the weavers whose earnings in 4 weeks amount to a specified sum, and who have not been absent from work more than 2 days in the period, are paid a premium upon those earnings.

In establishments where premiums were paid the number of weavers who earned premiums in full-time periods ranged from 10 to 30 per cent of the total number of weavers. As applied to all the weavers, the amounts paid in premiums were equivalent to 5 per cent on the earnings of each weaver, or 60 cents per week if the earnings amounted to $12.

WEAVING PIECE RATES IN WOOLEN AND WORSTED MILLS IN THE UNITED STATES.

The following tables show the piece rates per yard paid for weaving in a number of woolen and worsted mills in the United States. Table 43 presents the rates paid in 12 woolen mills, and Table 44 shows the scale of weaving rates that prevail in four worsted mills, and Table 45 the scales of 9 worsted mills, the first two tables being for one-loom and the last one for two-loom work.

WOOLEN GOODS—ONE LOOM TO A WEAVER.

TABLE 43.—*Weaving piece price per yard by establishments.*

Number of picks per inch.	Establishment—											
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
17		3.62										
18	4.14						3.30					
19	4.24	3.82										
20	4.34	3.93	3.630	5.05			3.60	3.60	3.76	3.14		
21			3.806									
22	4.55	4.14	3.993	5.45			3.90	3.90	4.13	3.51		
23			4.169									
24	4.65	4.45	4.356	5.75			4.20	4.20	4.51	3.88	4.40	
25		4.55	4.532									
26	4.85	4.65	4.719	6.15			4.50	4.50	4.89	4.26	4.60	
27		4.86	4.895									
28	5.28	4.96	5.082	6.44			4.80	4.80	5.26	4.64	4.80	
29		5.17	5.258									
30	5.59	5.27	5.445	6.82	6.40	5.90	5.10	5.10	5.64	5.01	5.10	
31		5.38	5.621									
32	6.00	5.48	5.808	7.08	6.60	6.10	5.40	5.40	6.02	5.39	5.40	
33		5.58	5.984									
34	6.41	5.69	6.171	7.46	6.90	6.40	5.70	5.70	6.39	5.77	5.70	

WOOLEN GOODS—ONE LOOM TO A WEAVER—continued.

TABLE 43.—*Weaving piece price per yard by establishments*—Continued.

Number of picks per inch.	Establishment—											
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
35		5.79	6.347									
36	6.72	5.89	6.534	7.71	7.30	6.70	6.00	6.00	6.76	6.14	6.00	
37		6.05	6.710									
38	7.14	6.21	6.897	8.07	7.60	7.00	6.30	6.30	7.15	6.51	6.30	
39		6.57	7.073									
40	7.55	6.72	7.260	8.31	7.90	7.30	6.60	6.60	7.52	6.89	6.60	6.60
41		6.83	7.436									
42	7.86	7.69	7.623	8.67	8.30	7.60	6.80	6.80	7.89	7.27	6.80	6.90
43		7.08	7.799									
44	8.27	8.00	7.986	8.88	8.60	7.90	7.10	7.10	8.27	7.64	7.10	7.20
45			8.162									
46	8.69	7.76	8.349	9.23	8.90	8.20	7.40	7.40	8.65	8.02	7.40	7.50
47			8.525									
48	9.00	7.96	8.712	9.42	9.30	8.50	7.70	7.70	9.02	8.40	7.70	7.80
49			8.888									
50	9.31	8.28	9.075	9.77	9.60	8.80	7.90	7.90	9.40	8.77	8.00	8.10
52	9.72	8.48	9.438	10.11	9.90	9.10	8.20	8.20	9.78	9.15	8.30	8.40
54	10.13	8.79	9.801	10.46	10.40	9.50	8.40	8.40	10.15	9.53	8.70	8.70
56	10.44	9.00	10.164	10.80	10.70	9.80	8.70	8.70	10.52	9.90	9.00	9.00
58	10.96	9.31	10.527	11.15	11.00	10.10	8.90	8.90	10.90	10.27	9.30	9.30
60	11.27	9.62	10.890	11.50	11.30	10.40	9.10	9.10	11.28	10.64	9.60	9.60
62	11.58	9.83	11.253	11.85	11.70	10.70	9.40		11.65	11.02		9.90
64	12.10	10.14	11.616	12.19	12.00	11.00	9.60		12.03	11.40		10.20
66	12.41		11.979	12.54	12.30	11.30	9.90		12.40	11.78		10.50
68	12.72		12.342	12.87	12.80	11.70	10.10		12.78	12.16		10.80
70	13.13		12.705	13.23	13.10	12.00	10.30		13.16	12.53		11.10
72	13.54		13.068	13.57	13.40	12.30	10.60		13.54	12.90		11.40
74			13.431	13.93	13.80	12.60	10.90		13.91	13.28		11.70
76			13.794	14.27	14.10	12.90	11.20		14.28	13.66		12.00
78			14.157	14.62	14.40	13.20	11.50		14.66	14.03		12.30
80			14.520	14.96	14.90	13.60	11.80		15.04	14.41		
82				15.31	15.20	13.90			15.41	14.79		
84				15.65	15.50	14.20			15.79	15.16		
86				16.01	15.90	14.50			16.16	15.54		
88				16.35	16.20	14.80			16.54	15.92		
90				16.70	16.50	15.10			16.92	16.29		
92				17.04	16.80	15.40			17.30	16.66		
94				17.39	17.30	15.80			17.67	17.05		
96				17.73	17.60	16.10			18.04	17.42		
98				18.08	17.90	16.40			18.42	17.80		
100				18.43	18.30	16.70			18.80	18.18		
102				18.78	18.60	17.00						
104				19.12	18.90	17.30						
106				19.47	19.30	17.60						

No. 1.—Speed of looms, 90 to 96 picks per minute. Ten per cent additional paid for 1½ run and heavier filling. A premium ranging from 5 per cent on earnings of $40 for 4 weeks to 26 per cent on earnings of $60 for 4 weeks is also paid.

No. 2.—Speed of looms, 86 to 95 picks per minute. Two mills additional paid for each shuttle above 4.

No. 3.—Speed of looms, 94 picks per minute. Five mills additional paid for 1½ run or less filling and for 5 or more shuttles. Also 5 mills additional for fancy cloakings and suitings.

No. 4.—Speed of looms, 98 picks per minute.

No. 5.—Speed of looms, 90 picks per minute. One-half cent additional paid for 5 shuttles or more and when warp contains mohair. One cent additional paid for 14 to 19 harness work and 2 cents additional for 20 harness and over.

No. 6.—Speed of looms, 90 to 96 picks per minute. Three mills additional paid for each shuttle above 4 when more than one colored filling is used.

No. 7.—Speed of looms, 92 to 110 picks per minute.

No. 8.—Speed of looms, 90 picks per minute. One-half cent additional paid for 5 shuttles or more and when warp contains mohair. One cent additional paid for 14 to 19 harness work and 2 cents additional for 20 harness and over.

No. 9.—Speed of looms, 90 picks per minute. A premium is paid ranging from 5 per cent on earnings of $37.40 for 4 weeks to 10 and 17 per cent on earnings of $57.20.

No. 10.—Speed of looms, 100 to 110 picks per minute. A premium is paid ranging from 5 per cent on earnings of $37.40 for 4 weeks to 10 and 17 per cent on earnings of $57.20.

No. 11.—Speed of looms, 95 to 100 picks per minute.

No. 12.—Speed of looms, 100 to 105 picks per minute.

WORSTED GOODS—ONE LOOM TO A WEAVER.

TABLE 44.—*Weaving piece price per yard, by establishments.*

Number of picks per inch.	Establishments—			
	No. 1.	No. 2.	No. 3.	No. 4.
	Cents.	*Cents.*	*Cents.*	*Cents.*
20		4.05	4.09	3.95
22		4.45	4.51	4.35
24		4.75	4.82	4.65
26		5.15	5.23	5.05
28		5.44	5.53	5.34
30		5.82	5.92	5.72
32		6.08	6.19	5.98
34		6.46	6.59	6.36
36		6.71	6.85	6.61
38		7.07	7.22	6.97
40	6.00	7.31	7.47	7.21
41	6.20			
42	6.30	7.67	7.84	7.57
43	6.50			
44	6.60	7.88	8.06	7.78
45	6.80			
46	6.90	8.23	8.42	8.13
47	7.10			
48	7.20	8.42	8.62	8.32
49	7.40			
50	7.50	8.77	8.98	8.67
51	7.70			
52	7.80	9.11	9.33	9.01
53	8.00			
54	8.10	9.46	9.69	9.36
55	8.25			
56	8.40	9.80	10.05	9.70
57	8.50			
58	8.70	10.15	10.41	10.06
59	8.90			
60	9.00	10.50	10.77	10.40
61	9.20			
62	9.30	10.85	11.13	10.75
63	9.50			
64	9.60	11.19	11.49	11.09
65	9.80			
66	9.90	11.54	11.85	11.44
67	10.10			
68	10.20	11.87	12.20	11.78
69	10.40			
70	10.50	12.23	12.56	12.13
72		12.57	12.92	12.47
74		12.93	13.29	12.83
76		13.27	13.64	13.17
78		13.62	14.00	13.52
80		13.96	14.35	13.86
82		14.31	14.72	14.21
84		14.65	15.07	14.55
86		15.01	15.44	14.91
88		15.85	15.79	15.25
90		15.70	16.16	15.60
92		16.04	16.51	15.94
94		16.39	16.87	16.29
96		16.73	17.22	16.63
98		17.08	17.59	16.98
100		17.43	17.95	17.33
102		17.78	18.31	17.68
104		18.12	18.66	18.02
106		18.47	19.03	18.37
108		18.81	19.38	18.71
110		19.16	19.74	19.06
112		19.50	20.09	19.40
114		19.86	20.47	19.76
116		20.20	20.82	20.10
118		20.55	21.18	20.45
120		20.89	21.58	20.79

No. 1.—Speed of looms, 90 to 100 picks per minute.

No. 2.—Speed of looms, 98 picks per minute; 1 cent per yard additional paid for fancy weave.

No. 3.—Speed of looms, 100 to 106 picks per minute; 11.4 mills per yard additional paid on all looms running less than 100 picks per minute; 11.4 mills per yard additional paid for fancy weave.

No. 4.—Eleven mills per yard additional paid for fancy weaves and on all looms running less than 100 picks per minute.

WORSTED GOODS—TWO LOOMS TO A WEAVER.

TABLE 45.—*Weaving piece price per yard, by establishments.*

Number of picks per inch.	Establishment—								
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.	No. 9.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
20	1.80					1.63	1.18	1.41	
22						1.79	1.29	1.54	
24						1.95	1.42	1.69	
25	2.20								
26						2.10	1.53	1.82	
28	2.40					2.28	1.67	1.98	1.69
29		1.70							1.76
30	2.60			2.80	3.40	2.44	1.78	2.11	1.82
31									1.87
32	2.80			2.90	3.50	2.60	1.91	2.26	1.93
33		2.00							2.00
34				3.00	3.60	2.77	2.02	2.39	2.06
35	3.10								2.12
36		2.10		3.10	3.70	2.93	2.13	2.54	2.19
37									2.23
38			3.00	3.30	3.90	3.10	2.26	2.68	2.30
39									2.36
40	3.50	2.40	3.10	3.50	4.00	3.26	2.38	2.83	2.42
41									2.49
42	3.70	2.50	3.30	3.60	4.10	3.42	2.50	2.96	2.55
43									2.60
44	3.80	2.80	3.40	3.70	4.20	3.58	2.61	3.10	2.66
45									2.73
46			3.60	3.90	4.40	3.74	2.73	3.24	2.79
47									2.85
48	4.20	3.00	3.70	4.00	4.60	3.90	2.85	3.38	2.90
49									2.96
50		3.10	3.90	4.20	4.80	4.08	2.97	3.53	3.03
51									3.09
52	4.50	3.20	4.00	4.40	4.90	4.24	3.09	3.67	3.15
53									3.22
54	4.80		4.10	4.50	5.00	4.40	3.20	3.80	3.26
55									3.33
56		3.40	4.40	4.70	5.20	4.46	3.32	3.95	3.39
57									3.52
58			4.50	4.90	5.40	4.71	3.44	4.08	3.57
59									3.63
60	5.60	3.70	4.70	5.00	5.60	4.89	3.56	4.23	3.69
61									3.76
62			4.80	5.10	5.70	5.04	3.68	4.36	3.82
63									3.88
64		4.00	5.00	5.30	5.90	5.22	3.80	4.52	3.93
65									4.00
66			5.20	5.50	6.10	5.38	3.91	4.65	4.06
67									4.12
68		4.20	5.30	5.70	6.20	5.54	4.04	4.80	4.19
69									4.25
70	6.70		5.60	5.90	6.50	5.70	4.15	4.93	4.30
71									4.36
72		4.50	5.80	6.10	6.70	5.86	4.27	5.07	4.42
73									4.49
74	7.10		6.00	6.30	6.90	6.03	4.40	5.22	4.55
76			6.20	6.50	7.10	6.18	4.52	4.35	
78			6.30	6.70	7.20	6.36	4.64	5.50	
80		4.90	6.50	6.90	7.40	6.51	4.75	5.63	
82			6.70	7.00	7.60	6.68	4.88	5.78	
84	8.00	5.20	6.90	7.20	7.80	6.84	4.99	5.91	
86			7.10	7.50	8.00	7.00	5.12	6.06	
88			7.30	7.70	8.20	7.17	5.23	6.20	
90			7.50	7.90	8.40	7.32	5.34	6.34	
92			7.70	8.00	8.50	7.49			
94			7.90	8.20	8.70	7.65			
96			8.00	8.30	8.90	7.82			
98			8.20	8.50	9.10	7.97			
100			8.40	8.80	9.30	8.14			
102					9.50				
104					9.70				

WORSTED GOODS—TWO LOOMS TO A WEAVER—continued.

TABLE 45.—*Weaving piece price per yard, by establishments*—Continued.

Number of picks per inch.	Establishment—								
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.	No. 9.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
106			9.00	9.30	9.90				
108				9.40	10.00				
112			9.50	9.80	10.40				
116					10.80				
120					11.10				

No. 1.—Speed of looms, 112 picks a minute.
No. 2.—Speed of looms, 140 picks a minute.
No. 3.—Speed of looms, 126 to 140 picks a minute. Plain weave.
No. 4.—Speed of looms, 106 to 113 picks a minute. Fancy weave under 10 harness.
No. 5.—Speed of looms, 106 to 113 picks a minute. Fancy weave 10 harness and over.
No. 6.—Speed of looms, 100 to 110 picks a minute.
No. 7.—Speed of looms, 130 picks a minute. Plain weave. Filling 2/16 and under, 10 per cent extra. Filling 2/14 and under, 20 per cent extra. Filling two colors, 10 per cent extra. Over 8 harness, 10 per cent extra. Double beam work, double back warp, 10 per cent extra. Double beam work, single back warp, 20 per cent extra. Five per cent extra for each shade in warp in addition to one color in fancy mixtures. A premium of 5 per cent is paid on 4 weeks' earnings amounting to from $39 to $43.50 and 10 per cent on earnings from $43.50 to $48. An additional premium of 5 per cent is paid for earnings of $48 and 1 per cent extra for every dollar over $48.
No. 8.—Speed of looms, 122 picks a minute. Same extras and premiums paid as in note 7, except that nothing extra is allowed for over 8 harness work.
No. 9.—Speed of looms, 112 to 140 picks a minute. Additional amounts are paid as follows: for heavy weights 40/63 cents per yard. For pick and pick work 25/63 cents per yard. Two-shuttle work 15/63 cents per yard, and 5/63 cents per yard for each shuttle over two. Additional 3/63 cents per yard is paid for each harness over 8.

In the United States the almost universal method of payment of weavers is by the piece—a fixed rate per yard—with no payment for time lost by the weaver through no fault of his, as in the case of waits for warps, filling, or for repairs of loom. However, when weaving patterns or samples the weaver is paid a fixed hourly rate.

The price or rate per yard paid to a weaver varies primarily with the number of picks per inch in the fabric, the speed of the loom, and the number of looms operated. These are the principal factors affecting the weaving rates, but there are a number of smaller factors that enter into the computation, as will be seen by reference to the footnotes to Tables 43, 44, and 45, such as number of harness, number of shuttles, the color of the filling, and the kind of filling. In some mills, however, these smaller factors are not considered. Then again, in other mills weavers are paid a premium of 5 per cent and upward on earnings above specified amounts for four weeks.

In Table 43 weaving rates are shown for 12 different woolen mills located in New England, the Middle Eastern States, and the Middle West.

In weaving woolen goods a weaver almost universally attends one loom, so the data are shown in Table 43 for one-loom work only. Reference to the footnotes discloses the fact that in the several establishments the speeds of the looms vary considerably.

To show the range of piece rates paid for weaving woolen goods, take the rates shown for a fabric having 50 picks per inch. The basic prices paid per yard are as follows:

Establishment.	Piece price per yard (cents).	Speed of looms (picks per minute).	Establishment.	Piece price per yard (cents.)	Speed of looms (picks per minute).
No. 4	9.77	98	No. 10	8.77	100–110
No. 5	9.60	90–110	No. 2	8.28	86– 95
No. 9	9.40	90	No. 12	8.10	100–105
No. 1	9.31	90–96	No. 11	8.00	95–100
No. 3	9.075	94	No. 7	7.90	90– 96
No. 6	8.80	90	No. 8	7.90	92–110

The above tabular statement shows that the rates for weaving a 50-pick woolen fabric range from 7.90 cents per yard to 9.77 cents—a difference of nearly 2 (1.87) cents per yard, which is indicative of the general range shown for all classes of woolen fabrics.

It is apparent also that in the case of woolen fabrics the speed of the looms is largely a negligible factor in so far as it affects the piece price, for the tabular statement shows that several of the mills paying high rates have slower looms than several mills which pay low rates.

The prevailing method of weaving worsted goods is to assign a weaver to two looms, but in many cases, especially where a fine fabric or a fabric difficult to weave is to be made, a weaver will attend only one loom. In Table 44 price lists of piece rates paid to worsted weavers operating one loom are shown for four establishments.

Table 44 shows that the rates for weaving in establishments 2, 3, and 4 are approximately the same on all fabrics—from those having only 20 picks per inch to those having 120 picks per inch. The greatest difference shown in any case is only 6 mills per yard, while in most cases the variance is only 3 to 4 mills. But the rates paid in establishment 1 are uniformly from 1½ cents to over 2 cents lower than those paid in the other three establishments.

The footnotes to Table 44 show that the speed of the looms in the several mills was approximately the same—about 100 picks per minute.

CARDED WOOL MULE SPINNERS' PIECE RATES FOR SPINNING WARP YARN IN THE UNITED STATES.

The following table shows the piece price per 100 pounds of warp yarn paid spinners operating one mule of 240, 288, 300, 340, 360, 380, 400, and 440 spindles each and producing various sizes of yarn from seven-eighths run to 8½ runs, for a number of establishments:

TABLE 46.—*Piece price per 100 pounds of warp yarn paid spinners operating one mule.*

Size of yarn.	Mules of 240 spindles in establishment.			Mules of 288 spindles in establishment.				Mules of 300 spindles in establishment.				Mules of 340 spindles in establishment.		
	No. 1.[1]	No. 2.[2]	No. 3.[3]	No. 1.	No. 2.	No. 3.[1]	No. 4.[3]	No. 1.[3]	No. 2.[2]	No. 3.[3]	No. 4.	No. 1.[3]	No. 2.	No. 3.
Runs.														
1	$0.77	$0.75	$0.74	$0.7178	$0.621	$0.605	$0.74	0.70	$0.68	$0.74	$0.621	$0.62	$0.805	$0.621
1⅛	.78	.79	.75	.7292	.683	.616	.75	.71	.73	.75	.683	.64	......	......
1¼	.81	.83	.78	.7518	......	.638	.78	.76	.77	.78	......	.66	.855	.683
1⅜	.85	.87	.83	.7860	......	.671	.83	.79	.80	.83	......	.69	......	......
1½	.88	.91	.85	.8317	.745	.693	.85	.82	.85	.85	.745	.71	.95	.745
1⅝	.95	.96	.92	.9113	......	.748	.92	.89	.88	.92	......	.78	1.01	......
1¾	1.03	1.00	.99	.9683	.807	.803	.99	.95	.92	.99	.807	.83	1.065	.807
1⅞	1.14	1.05	1.10	1.0596	......	.891	1.10	1.05	.97	1.10	......	.92	......	......
2	1.21	1.09	1.17	1.1392	.910	.946	1.17	1.12	1.00	1.17	.910	.98	1.165	.910
2⅛	1.25	1.13	1.21	1.1734	......	.979	1.21	1.16	1.05	1.21	......	1.01	......	......
2¼	1.28	1.18	1.27	1.1963	.983	1.001	1.27	1.18	1.08	1.27	.983	1.04	1.26	.983
2⅜	1.32	1.23	1.28	1.2533	......	1.034	1.28	1.23	1.13	1.28	......	1.07	......	......
2½	1.40	1.29	1.35	1.3215	1.045	1.100	1.35	1.29	1.19	1.35	1.045	1.14	1.35	1.045
2⅝	1.44	1.34	1.39	1.3443	......	1.222	1.39	1.32	1.24	1.39	......	1.16	......	......
2¾	1.46	1.40	1.41	1.3672	1.128	1.144	1.41	1.35	1.30	1.41	1.128	1.18	1.435	1.12
2⅞	1.51	1.46	1.46	1.4354	......	1.188	1.46	1.40	1.34	1.46	......	1.23	......	......
3	1.58	1.52	1.53	1.4810	1.21	1.232	1.53	1.46	1.40	1.53	1.21	1.27	1.54	1.21
3⅛	......	1.57	......	1.5152	......	......	......	......	1.45	......	......	......	......	......
3¼	1.66	1.63	1.60	1.5495	1.26	1.298	1.60	1.52	1.51	1.60	1.26	1.35	1.63	1.26
3⅜	......	1.68	......	......	......	......	......	......	1.56	......	......	......	......	......
3½	1.73	1.75	1.67	1.6291	1.314	1.353	1.67	1.59	1.61	1.67	1.314	1.40	1.73	1.314
3⅝	......	1.80	......	......	......	......	......	......	1.66	......	......	......	......	......
3¾	1.85	1.86	1.79	1.7432	1.386	1.441	1.79	1.71	1.72	1.79	1.386	1.49	1.84	1.386
3⅞	......	1.91	......	......	......	......	......	......	1.77	......	......	......	......	......
4	2.01	1.97	1.94	1.8684	1.47	1.562	1.94	1.84	1.83	1.94	1.47	1.62	......	1.47
4¼	2.15	2.09	2.08	2.0279	1.53	1.672	2.08	1.98	1.93	2.08	1.53	1.73	......	1.53
4⅜	......	......	......	2.0621	......	......	......	......	......	......	......	......		......
4½	2.30	2.20	2.20	2.1532	1.593	1.7 3	2.20	2.12	2.04	2.20	1.593	1.85	......	1.593
4¾	2.44	2.32	2.37	2.2899	1.656	1.903	2.37	2.26	2.13	2.37	1.656	1.97	......	1.656
5	2.60	2.43	2.52	2.4379	1.76	2.024	2.52	2.39	2.24	2.52	1.76	2.09	......	1.76
5⅛	......	2.51	......	......	......	......	......	......	2.31	......	......	......	......	......
5¼	2.74	2.57	2.65	2.5634	1.80	2.145	2.65	2.53	2.38	2.65	1.80	2.22	......	1.80
5½	2.89	2.72	2.79	2.7229	1.863	2.255	2.79	2.66	2.51	2.79	1.863	2.34	......	1.863
5¾	3.19	2.86	3.08	2.9848	1.925	2.486	3.08	2.94	2.64	3.08	1.925	2.58	......	1.925
6	3.33	3.00	3.22	3.1443	2.09	2.596	3.22	3.07	2.77	3.22	2.09	2.69	......	2.09
6¼	3.49	3.15	3.37	3.2696	2.214	2.717	3.37	3.21	2.90	3.37	2.214	2.82	......	2.214
6½	3.63	3.29	3.51	3.4065	2.328	2.827	3.51	3.34	3.04	3.51	2.328	2.93	......	2.328
6¾	......	3.43	......	3.5204	2.484	......	......	......	3.17	......	2.484	......	......	2.484
7	......	3.58	......	......	2.535	......	......	......	3.30	......	2.535	......	......	2.535
7¼	......	3.72	......	......	2.597	......	......	......	3.43	......	2.597	......	......	2.597
7½	......	3.86	......	......	2.887	......	......	......	3.56	......	2.887	......	......	2.887
7¾	......	4.00	......	......	3.04	......	......	......	3.70	......	3.04	......	......	3.04
8	......	4.15	......	......	3.29	......	......	......	3.83	......	3.29	......	......	3.29
8¼	......	......	......	......	3.539	......	......	......	......	......	3.539	......	......	3.539
8½	......	......	......	......	3.798	......	......	......	......	......	3.798	......	......	3.798

NOTE.—When a spinner attends a pair of mules with a small number of spindles each, he is not paid at the above rate, but is given a special rate, which is slightly under double the rate for attending one mule.

[1] A premium of 5 per cent paid to spinners earning $43.60 and over in a period of four weeks.

[2] A premium of 5 per cent paid to spinners earning $43.60 and over in a period of four weeks. With helper on yarn of 1⅞ run and coarser, 10 per cent of regular spinners' price is deducted.

[3] A premium of 5 per cent paid to spinners earning $48 and over in a period of four weeks. With helper on yarn of 1⅞ run and coarser, 10 per cent of regular spinners' price is deducted.

TABLE 46.—*Piece price per 100 pounds of warp yarn paid spinners operating one mule*—Continued.

Size of yarn.	Mules of 360 spindles in establishment.				Mules of 380 spindles in establishment.			Mules of 400 spindles in establishment.			Mules of 440 spindles in establishment.			
	No.1.	No.2.[1]	No.3.[2]	No.4.[1]	No.1.	No.2.[1]	No.3.[1]	No.1.	No.2.[1]	No.3.	No.1.	No.2.[1]	No.3.[2]	No.4.
Runs.														
⅞										$0.506				$0.506
1	$0.6722	$0.62	$0.61	$0.61	$0.6380	$0.59	$0.61	$0.6323	$0.59	.532	$0.6266	$0.59	$0.57	.532
1⅛	.6836	.64	.64	.62	.6494	.60	.62	.6437	.60	.559	.6380	.60	.61	.559
1¼	.7063	.66	.67	.64	.6722	.62	.64	.6665	.62	.585	.6608	.62	.64	.585
1⅜	.7405	.69	.70	.67	.7063	.66	.67	.7007	.66	.613	.6950	.66	.67	.613
1½	.7747	.71	.74	.69	.7291	.68	.69	.7234	.68	.639	.7177	.68	.70	.639
1⅝	.8430	.78	.77	.75	.7975	.75	.75	.7861	.75	.692	.7747	.75	.74	.692
1¾	.90	.83	.81	.80	.8545	.80	.80	.8430	.80	.746	.8317	.80	.77	.746
1⅞	.9912	.92	.85	.89	.9456	.88	.89	.9342	.88	.799	.9228	.88	.80	.799
2	1.0595	.98	.88	.95	1.0026	.93	.95	.9912	.93	.851	.9798	.93	.84	.851
2⅛	1.0937	1.01	.91	.98	1.0367	.97	.98	1.0253	.97	.878	1.0140	.97	.87	.878
2¼	1.1165	1.04	.95	1.00	1.0595	.99	1.00	1.0481	.99	.905	1.0367	.99	.90	.905
2⅜	1.1621	1.07	.99	1.03	1.1051	1.03	1.03	1.0880	1.03	.945	1.0709	1.03	.95	.945
2½	1.2304	1.14	1.05	1.10	1.1621	1.08	1.10	1.1507	1.08	.984	1.1393	1.08	.99	.984
2⅝	1.2532	1.16	1.09	1.12	1.1848	1.11	1.12	1.1734	1.11	.998	1.1621	1.11	1.03	.998
2¾	1.2760	1.18	1.13	1.14	1.2076	1.13	1.14	1.1962	1.13	1.012	1.1848	1.13	1.00	1.012
2⅞	1.3329	1.23	1.18	1.19	1.2646	1.17	1.19	1.2475	1.17	1.050	1.2304	1.17	1.12	1.050
3	1.3785	1.27	1.22	1.23	1.3102	1.22	1.23	1.2931	1.22	1.089	1.2760	1.22	1.17	1.089
3⅛	1.4127		1.28		1.3386			1.3244		1.133	1.3102		1.21	1.133
3¼	1.4469	1.35	1.32	1.30	1.3671	1.27	1.30	1.3557	1.27	1.177	1.3443	1.27	1.25	1.177
3⅜			1.36							1.221			1.30	1.221
3½	1.5152	1.40	1.41	1.35	1.4355	1.34	1.35	1.4184	1.34	1.265	1.4013	1.34	1.34	1.265
3⅝			1.45							1.309			1.39	1.309
3¾	1.6178	1.49	1.51	1.44	1.5266	1.43	1.44	1.5095	1.43	1.353	1.4924	1.43	1.43	1.353
3⅞			1.55										1.47	
4	1.7431	1.62	1.60	1.56	1.6519	1.53	1.56	1.6349	1.53	1.540	1.6178	1.53	1.52	1.540
4⅛										1.600				1.600
4¼	1.8798	1.73	1.68	1.67	1.7773	1.66	1.67	1.7545	1.66	1.660	1.7317	1.66	1.61	1.660
4⅜	1.9254				1.8342			1.8114		1.720	1.7887			1.720
4½	2.0051	1.85	1.78	1.79	1.9026	1.76	1.79	1.8798	1.76	1.780	1.8570	1.76	1.69	1.780
4⅝										1.840				1.840
4¾	2.1304	1.97	1.87	1.90	2.0165	1.87	1.90	1.9937	1.87	1.900	1.9709	1.87	1.78	1.900
4⅞										1.960				1.960
5	2.2671	2.09	1.97	2.02	2.1418	2.00	2.02	2.1190	2.00	2.020	2.0963	2.00	1.87	2.020
5⅛			2.02							2.080			1.93	2.080
5¼	2.3925	2.22	2.08	2.15	2.2671	2.10	2.15	2.2444	2.10	2.140	2.2216	2.10	1.98	2.140
5⅜										2.200				2.200
5½	2.5292	2.34	2.20	2.26	2.3925	2.23	2.26	2.3640	2.23	2.260	2.3355	2.23	2.09	2.260
5⅝										2.320				2.320
5¾	2.7798	2.58	2.31	2.49	2.6317	2.44	2.49	2.6032	2.44	2.380	2.5748	2.44	2.20	2.380
5⅞										2.440				2.440
6	2.9165	2.69	2.43	2.60	2.7570	2.57	2.60	2.7229	2.57	2.500	2.6887	2.57	2.31	2.500
6⅛										2.560				2.560
6¼	3.0418	2.82	2.54	2.72	2.8824	2.67	2.72	2.8482	2.67	2.620	2.8140	2.67	2.42	2.620
6⅜										2.680				2.680
6½	3.1672	2.93	2.66	2.83	2.9963	2.80	2.83	2.9621	2.80	2.740	2.9279	2.80	2.53	2.740
6⅝										2.800				2.800
6¾	3.2925		2.77		3.1102			3.0760		2.860	3.0646		2.64	2.860
6⅞										2.920				2.920
7			2.89							2.980			2.75	2.980
7⅛										3.040				3.040
7¼			3.00							3.100			2.86	3.100
7⅜										3.160				3.160
7½			3.12							3.220			2.97	3.220
7⅝										3.280				3.280
7¾			3.23							3.340			3.08	3.340
7⅞										3.400				3.400
8			3.36							3.460			3.19	3.460
8¼										3.580				3.580
8½										3.700				3.700

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[1] A premium of 5 per cent paid to spinners earning $48 and over in a period of four weeks.

[2] A premium of 5 per cent paid to spinners earning $43.60 and over in a period of four weeks. With helper on yarn of 1¾ run and coarser, 10 per cent of regular spinners' price is deducted.

CARDED WOOL MULE SPINNERS' PIECE RATES FOR SPINNING FILLING YARN IN THE UNITED STATES.

The following table shows the piece price per 100 pounds of filling yarn paid spinners operating one mule of 240, 288, 300, 340, 360, 380, 400, and 440 spindles each and producing various sizes of yarn from ⅞ run to 8½ runs, for a number of establishments:

TABLE 47.—*Piece price per 100 pounds of filling yarn paid spinners operating one mule.*

Size of yarn.	Mules of 240 spindles in establishment.			Mules of 288 spindles in establishment.				Mules of 300 spindles in establishment.				Mules of 340 spindles in establishment.		
	No. 1.[1]	No. 2.[3]	No. 3.[3]	No. 1.	No. 2.[3]	No. 3.[1]	No. 4.	No. 1.[3]	No. 2.[4]	No. 3.[3]	No. 4.	No. 1.[3]	No. 2.	No. 3.
Runs.														
1	$0.77	$0.75	$0.74	$0.7178	$0.74	$0.605	$0.569	$0.70	$0.68	$0.74	$0.569	$0.62	$0.72	$0.569
1⅛	.78	.79	.75	.7292	.75	.616		.71	.73	.75		.64		
1¼	.81	.83	.78	.7518	.78	.638	.62	.76	.77	.78	.62	.66	.77	.62
1⅜	.85	.87	.83	.7860	.83	.671		.79	.80	.83		.69		
1½	.88	.91	.85	.8317	.85	.693	.683	.82	.85	.85	.683	.71	.885	.683
1⅝	.95	.96	.92	.9113	.92	.748		.89	.88	.92		.78	.97	
1¾	1.03	1.00	.99	.9683	.99	.803	.745	.95	.92	.99	.745	.83	1.045	.745
1⅞	1.07	1.00	1.03	.9912	1.03	.847		.99	.92	1.03		.88		
2	1.15	1.03	1.10	1.0596	1.10	.891	.848	1.05	.96	1.10	.848	.92	1.115	.848
2⅛	1.17	1.08	1.13	1.1164	1.13	.924		1.10	.99	1.13		.95		
2¼	1.21	1.11	1.17	1.1392	1.17	.946	.962	1.12	1.03	1.17	.962	.98	1.165	.962
2⅜	1.26	1.18	1.22	1.1849	1.22	.99		1.17	1.08	1.22		1.03		
2½	1.30	1.23	1.27	1.2419	1.27	1.023	.983	1.21	1.16	1.27	.983	1.06	1.26	.983
2⅝	1.32	1.28	1.28	1.2533	1.28	1.034		1.23	1.18	1.28		1.08		
2¾	1.36	1.33	1.31	1.2645	1.31	1.067	1.045	1.25	1.23	1.31	1.045	1.11	1.35	1.045
2⅞	1.39	1.39	1.34	1.2863	1.34	1.089		1.27	1.28	1.34		1.13		
3	1.44	1.44	1.39	1.3443	1.39	1.122	1.128	1.33	1.33	1.39	1.128	1.16	1.435	1.128
3⅛		1.51		1.3843					1.39					
3¼	1.50	1.54	1.45	1.4242	1.45	1.177	1.21	1.39	1.43	1.45	1.21	1.22	1.54	1.21
3⅜		1.61							1.47					
3½	1.58	1.68	1.53	1.4810	1.53	1.232	1.273	1.46	1.53	1.53	1.273	1.27	1.63	1.273
3⅝		1.72							1.58					
3¾	1.71	1.77	1.65	1.6063	1.65	1.331	1.314	1.57	1.64	1.65	1.314	1.38	1.73	1.314
3⅞		1.82							1.67					
4	1.85	1.87	1.79	1.7432	1.79	1.441	1.386	1.71	1.73	1.79	1.386	1.49		1.386
4¼	2.01	1.99	1.94	1.8684	1.94	1.562	1.47	1.84	1.84	1.94	1.47	1.62		1.47
4⅜				1.9368										
4½	2.15	2.09	2.08	2.0279	2.08	1.672	1.53	1.98	1.93	2.08	1.53	1.73		1.53
4¾	2.30	2.20	2.20	2.1532	2.20	1.793	1.552	2.12	2.04	2.20	1.552	1.85		1.552
5	2.45	2.32	2.37	2.2899	2.37	1.903	1.656	2.26	2.13	2.37	1.656	1.97		1.656
5⅛		2.39							2.20					
5¼	2.60	2.44	2.51	2.4379	2.51	2.024	1.76	2.39	2.26	2.51	1.76	2.09		1.76
5½	2.74	2.59	2.65	2.5748	2.65	2.134	1.80	2.53	2.39	2.65	1.80	2.21		1.80
5¾	3.04	2.72	2.94	2.8596	2.94	2.365	1.863	2.81	2.51	2.94	1.863	2.44		1.863
6	3.19	2.86	3.08	2.9848	3.08	2.486	1.925	2.94	2.64	3.08	1.925	2.58		1.925
6¼	3.33	3.00	3.22	3.1443	3.22	2.596	2.09	3.07	2.77	3.22	2.09	2.69		2.09
6½	3.49	3.15	3.37	3.2696	3.37	2.717	2.214	3.21	2.90	3.37	2.214	2.82		2.214
6¾		3.29		3.3951			2.328		3.04		2.328			2.328
7		3.43					2.484		3.17		2.484			2.484
7¼		3.58					2.535		3.30		2.535			2.535
7½		3.72					2.597		3.43		2.597			2.597
7¾		3.86					2.887		3.56		2.887			2.887
8		4.00					3.04		3.70		3.04			3.04
8¼							3.29				3.29			3.29
8½							3.539				3.539			3.539

NOTE.—When a spinner attends a pair of mules with a small number of spindles each he is not paid at the above rate but is given a special rate which is slightly under double the rate for attending 1 mule.

[1] A premium of 5 per cent is paid to spinners earning $43.60 and over in a period of 4 weeks.

[2] A premium of 5 per cent is paid to spinners earning $43.60 and over in a period of 4 weeks. Warp price list paid for filling having warp twist. With helper on yarn of 1⅞ run and coarser 5 per cent of regular filling price is deducted.

[3] A premium of 5 per cent is paid to spinners earning $48 and over in a period of 4 weeks.

[4] A premium of 5 per cent is paid to spinners earning $48 and over in a period of 4 weeks. Warp price list paid for filling having warp twist. With helper on yarn of 1⅞ run and coarser 5 per cent of regular filling price is deducted.

TABLE 47.—*Piece price per 100 pounds of filling yarn paid spinners operating one mule*—Continued.

Size of yarn.	Mules of 360 spindles in establishment.				Mules of 380 spindles in establishment.			Mules of 400 spindles in establishment.			Mules of 440 spindles in establishment.			
	No. 1.	No. 2.[1]	No. 3.[2]	No. 4.[1]	No. 1.	No. 2.[1]	No. 3.[1]	No. 1.	No. 2.[1]	No. 3.	No. 1.	No. 2.[1]	No. 3.[2]	No. 4.
Runs.														
⅞										$0.46				$0.46
1	$0.6722	$0.62	$0.61	$0.61	$0.638	$0.59	$0.61	$0.6323	$0.59	.484	$0.6266	$0.59	$0.57	.484
1⅛	.6836	.64	.64	.62	.649	.60	.62	.6437	.60	.508	.6380	.60	.61	.508
1¼	.7063	.66	.67	.64	.672	.62	.64	.6665	.62	.532	.6608	.62	.64	.532
1⅜	.7405	.69	.70	.67	.706	.66	.67	.7007	.66	.557	.6950	.66	.67	.557
1½	.7747	.71	.74	.69	.729	.68	.69	.7234	.68	.581	.7177	.68	.70	.581
1⅝	.8430	.78	.77	.75	.797	.75	.75	.7861	.75	.629	.7747	.75	.74	.629
1¾	.9000	.83	.81	.80	.854	.80	.80	.8430	.80	.678	.8317	.80	.77	.678
1⅞	.9342	.88	.81	.85	.888	.83	.85	.8829	.83	.726	.8772	.83	.77	.726
2	.9912	.92	.84	.89	.945	.88	.89	.9342	.88	.774	.9228	.88	.79	.774
2⅛	1.0367	.95	.87	.92	.979	.91	.92	.9684	.91	.798	.9570	.91	.83	.798
2¼	1.0595	.98	.90	.95	1.002	.93	.95	.9912	.93	.823	.9798	.93	.86	.823
2⅜	1.1051	1.03	.95	.99	1.048	.98	.99	1.0367	.98	.859	1.0253	.98	.90	.859
2½	1.1507	1.06	.99	1.02	1.093	1.01	1.02	1.0766	1.01	.895	1.0595	1.01	.95	.895
2⅝	1.1621	1.08	1.02	1.03	1.105	1.03	1.03	1.0880	1.03	.907	1.0709	1.03	.98	.907
2¾	1.1848	1.11	1.08	1.07	1.127	1.05	1.07	1.1165	1.05	.920	1.1051	1.05	1.02	.920
2⅞	1.2076	1.13	1.12	1.09	1.150	1.07	1.09	1.1393	1.07	.955	1.1279	1.07	1.07	.955
3	1.2532	1.16	1.17	1.12	1.184	1.11	1.12	1.1734	1.11	.990	1.1621	1.11	1.11	.990
3⅛	1.2874		1.21		1.219			1.2047		1.030	1.1905		1.16	1.030
3¼	1.3216	1.22	1.24	1.18	1.253	1.16	1.18	1.2361	1.16	1.070	1.2190	1.16	1.19	1.070
3⅜			1.30							1.110			1.23	1.110
3½	1.3785	1.27	1.34	1.23	1.310	1.22	1.23	1.2931	1.22	1.150	1.2760	1.22	1.28	1.150
3⅝			1.39							1.190			1.32	1.190
3¾	1.4924	1.38	1.43	1.33	1.412	1.32	1.33	1.3956	1.32	1.230	1.3785	1.32	1.36	1.230
3⅞			1.46										1.40	
4	1.6178	1.49	1.52	1.44	1.526	1.42	1.44	1.5095	1.42	1.43	1.4924	1.42	1.44	1.43
4⅛										1.49				1.49
4¼	1.7431	1.62	1.61	1.56	1.651	1.53	1.56	1.6349	1.53	1.55	1.6178	1.53	1.53	1.55
4⅜	1.8001				1.708			1.6861		1.61	1.6634			1.61
4½	1.8798	1.73	1.68	1.67	1.777	1.66	1.67	1.7545	1.66	1.67	1.7317	1.66	1.61	1.67
4⅝										1.73				1.73
4¾	2.0051	1.85	1.78	1.79	1.902	1.76	1.79	1.8798	1.76	1.79	1.8570	1.76	1.69	1.79
4⅞										1.85				1.85
5	2.1304	1.97	1.87	1.90	2.016	1.87	1.90	1.9937	1.87	1.91	1.9709	1.87	1.78	1.91
5⅛			1.93							1.97			1.84	1.97
5¼	2.2671	2.09	1.98	2.02	2.141	1.99	2.02	2.1190	1.99	2.03	2.0963	1.99	1.88	2.03
5⅜										2.09				2.09
5½	2.3925	2.21	2.09	2.13	2.267	2.11	2.13	2.2387	2.11	2.15	2.2102	2.11	1.99	2.15
5⅝										2.21				2.21
5¾	2.6545	2.44	2.20	2.37	2.506	2.34	2.37	2.4779	2.34	2.27	2.4494	2.34	2.09	2.27
5⅞										2.33				2.33
6	2.7798	2.58	2.31	2.49	2.631	2.45	2.49	2.6032	2.45	2.39	2.5748	2.45	2.20	2.39
6⅛										2.45				2.45
6¼	2.9165	2.69	2.43	2.60	2.757	2.57	2.60	2.7229	2.57	2.51	2.6887	2.57	2.31	2.51
6⅜										2.57				2.57
6½	3.0418	2.82	2.54	2.72	2.882	2.68	2.72	2.8482	2.68	2.63	2.8140	2.68	2.42	2.63
6⅝										2.69				2.69
6¾	3.1672		2.66		3.007			2.9735		2.75	2.9393		2.53	2.75
6⅞										2.81				2.81
7			2.77							2.87			2.64	2.87
7⅛										2.93				2.93
7¼			2.89							2.99			2.75	2.99
7⅜										3.05				3.05
7½			3.00							3.11			2.86	3.11
7⅝										3.17				3.17
7¾			3.12							3.23			2.97	3.23
7⅞										3.29				3.29
8			3.23							3.35			3.08	3.35
8¼										3.47				3.47
8½										3.59				3.59

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[1] A premium of 5 per cent is paid to spinners earning $48 or over in a period of 4 weeks.

[2] A premium of 5 per cent is paid to spinners earning $48 or over in a period of 4 weeks. Warp price list paid for filling having warp twist. With helper on yarn of 1¾ run and coarser 5 per cent of regular filling price is deducted.

MACHINERY, PRODUCTIVE EFFICIENCY, AND LABOR COST.

For the purpose of ascertaining the character and effectiveness of the machinery used in American woolen and worsted mills, investigation was made as to its productive efficiency and that of the persons engaged in its operation. The names of the machines used, the name of the country in which they were manufactured and year of make, the occupations and number of persons required in their operation, with the hours worked and earnings, together with the total production in the period, were secured in each of the following departments of manufacture in the mills investigated:

Departments.—Wool scouring; worsted wool carding; carded wool carding; combing or top making; drawing Bradford system and French system; frame spinning; mule spinning, worsted; mule spinning, carded wool.

WOOL SCOURING.

For wool scouring the following schedule form was used:

Persons employed.—(*a*) Occupation, (*b*) number, (*c*) country of birth.

Machines.—(*a*) Name; (*b*) place (country) and year of make, (*c*) number of wool-feeding machines, number of wool-scouring machines, number of wool-scouring bowls, number of wool-drying machines, number of other machines.

Time and earnings.—(*a*) Total hours worked on product, (*b*) total amount earned.

Production.—(*a*) Pounds of greasy wool fed to machines, (*b*) pounds of scoured wool produced, (*c*) grade of wool used.

In 30 establishments there were 67 scouring machines in operation having a total of 255 bowls. They were attended by 200 machine operatives, 67 nonmachine operatives, and 49 foremen and subforemen.

In the scouring departments of the mills investigated 85.1 per cent of all the employees were foreign born, 60 per cent being from Italy and eastern and southeastern Europe, while 14.9 per cent were natives of the United States. (See Table 4, page 957.)

(NOTE.—In the tables of productive efficiency and labor cost establishments are listed in numerical order for convenient reference in discussing each table. The numbers given to establishments in the first table are not the same as the numbers in the table following or in any one of the succeeding tables. For example, No. 3 in the scouring table is not given that number in any other table. The purpose of this is to prevent identification of establishments. The production and cost can not be followed from one department to another.)

The following table shows the country of manufacture of the scouring machines and the number of years in operation:

TABLE 48.—*Scouring machines in use in woolen and worsted mills in the United States, by place of make and years in operation.*

Years in operation.	Total scouring machines.		Scouring machines manufactured in—							
			United States.		England.		Germany.		France.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	67	100.0	37	100.0	18	100.0	7	100.0	5	100.0
Less than 5 years	11	16.4	4	10.8	4	22.2	3	42.9	......	......
5 years but less than 10 years	26	38.8	13	35.1	8	44.4	4	57.1	1	20.0
10 years but less than 15 years	17	25.3	13	35.1	3	16.7	......	......	1	20.0
15 years but less than 20 years	5	7.5	3	8.2	2	11.1	......	......	......	......
20 years but less than 25 years	5	7.5	2	5.4	......	......	......	......	3	60.0
25 years but less than 30 years	2	3.0	1	2.7	1	5.6	......	......	......	......
30 years and over	1	1.5	1	2.7	......	......	......	......	......	......

The table shows that of the total of 67 scouring machines in operation, 37, or 55.2 per cent, were manufactured in the United States while 30 machines, or 44.8 per cent, were made in foreign countries. Eighteen of the latter were manufactured in England, 7 in Germany; 4 in France, and 1 in Belgium.

Of the total number, 11 machines, or 16.4 per cent, were in operation less than 5 years; 43, or 64.1 per cent, 5 years but less than 15; while 13, or 19.5 per cent, were in operation for periods from 15 to 30 years and over.

The following table shows for each establishment the number of pounds per one man hour per machine operative and for all operatives. It also shows the labor cost per pound, per machine operatives, nonmachine operatives, supervisory and total labor cost, together with the average wage rate per hour for each class of employees.

WOOL-SCOURING DEPARTMENT.

TABLE 49.—*Productive efficiency of machine and operative, labor cost per pound, and average wage rate, by establishments.*

Establishment.	Pounds of greasy wool scoured per one man hour.		Labor cost per pound (not including repairs labor).				Average wage rate per hour.			Average number of operatives per machine.
			Productive.	Nonproductive.						
	Machine operatives.	All operatives.	Machine operatives.	Nonmachine operatives.	Supervisory.[1]	Total.	Machine operatives.	Nonmachine operatives.	Supervisory.[1]	
No. 1	280.89	129.48	$0.0005	$0.0003	$0.0003	$0.0011	$0.1318	$0.1044	$0.2238	5.25
No. 2	107.63	77.88	.0016	.0004	.0004	.0024	.1699	.1862	.3246	8.50
No. 3	156.49	105.56	.0009	.0001	.0004	.0014	.1416	.0948	.2365	4.50
No. 4	492.47	395.08	.0003	.0001	.0001	.0005	.1499	.1795	.3298	1.90
No. 5	92.81	75.17	.0015	....	.0005	.0020	.1425	....	.1950	4.00
No. 6	90.14	75.12	.0016	....	.0006	.0022	.1466	....	.2586	5.00
No. 7	96.23	76.99	.0017	....	.0008	.0025	.1620	....	.3103	2.00
No. 8	314.05	231.41	.0004	.0001	.0001	.0006	.1397	.1399	.2390	2.83
No. 9	228.85	214.11	.0007	....	.0001	.0008	.1509	....	.4286	4.00
No. 10	125.71	99.25	.0012	....	.0011	.0023	.1552	....	.5357	1.00
No. 11	186.57	147.15	.0009	....	.0006	.0015	.1779	....	.4000	2.00
No. 12	141.62	122.41	.0010	....	.0004	.0014	.1445	....	.3330	2.00
No. 13	81.86	67.41	.0021	....	.0013	.0034	.1741	....	.5000	1.00
No. 14	104.95	74.26	.0012	....	.0009	.0021	.1216	....	.2416	2.00
No. 15	60.62	57.73	.0024	....	.0003	.0027	.1450	....	.3500	2.00
No. 16	134.68	116.16	.0011	....	.0004	.0015	.1469	....	.3571	2.00
No. 17	102.01	59.99	.0014	.0007	.0003	.0024	.1397	.1229	.3636	4.50
No. 18	245.17	197.36	.0006	[2].0000	.0002	.0008	.1392	.1375	.2485	3.50
No. 19	278.85	199.30	.0005	.0002	.0001	.0008	.1454	.1533	.3420	4.00
No. 20	104.17	88.65	.0016	....	.0007	.0023	.1625	....	.4500	2.00
No. 21	174.72	156.54	.0009	....	.0003	.0012	.1634	....	.5000	2.00
No. 22	119.31	110.62	.0014	....	.0005	.0019	.1703	....	.6818	3.00
No. 23	392.35	219.03	.0004	.0002	.0002	.0008	.1456	.1425	.2949	4.00
No. 24	152.74	106.95	.0010	.0003	.0003	.0016	.1476	.1580	.3502	9.60
No. 25	295.71	125.68	.0006	.0005	.0002	.0013	.1782	.1200	.4285	7.60
No. 26	240.78	175.41	.0006	....	.0004	.0010	.1375	....	.2667	2.00
No. 27	66.97	61.29	.0022	....	.0005	.0027	.1493	....	.3571	4.00
No. 28	69.03	62.81	.0022	....	.0005	.0027	.1521	....	.3505	3.00
No. 29	133.43	109.96	.0010	....	.0003	.0013	.1369	....	.1941	2.00
No. 30	213.57	142.38	.0008	.0002	.0003	.0013	.1650	.1400	.3571	4.00

[1] Supervisory labor includes overseers, second hands, third hands, and section hands.

[2] Less than one-half of one-ten thousandth of a cent.

The table shows that the production of machine operatives was lowest for establishment No. 15, being 60.62 pounds per one-man hour, and highest for establishment No. 4, being 492.47 pounds per one-man hour. The total labor cost was lowest in establishment No. 4, being 5 cents per 100 pounds (0.0005 per pound) and highest in establishment No. 13, being 34 cents per 100 pounds. The average wage rate for machine operatives was lowest in establishment No. 14, being 12.16 cents per hour, and highest in establishment No. 25, being 17.82 cents per hour.

In the process of scouring the wool is not agitated nor is speed an important factor. Labor cost in this department is, therefore, not dependent upon quick-acting machinery, the productive capacity of the plant being the principal factor. The machines in a large degree are automatic in their action.

WORSTED CARDING.

For the worsted carding department the following schedule was used:

Persons employed.—(*a*) Occupation, (*b*) country of birth, (*c*) number of males 16 and over and under 16, (*d*) number of females 16 and over and under 16.

Carding machines.—(*a*) Name, (*b*) number, (*c*) width of card, (*d*) place (country) and year of make.

Time and earnings.—(*a*) Total hours worked on product, (*b*) total amount earned.

Production.—(*a*) Pounds produced, (*b*) grade of stock used.

In the worsted mills investigated there were 658 carding machines, 627 of which were in operation. They were operated by 159 machine attendants. In other capacities connected with carding production were 218 nonmachine operatives and 44 persons engaged in supervision.

In the carding departments (woolen and worsted combined) of the mills investigated 67.3 per cent of all employees were foreign born, 43.4 per cent being from Italy and eastern and southeastern Europe, while 32.7 per cent were natives of the United States. (See table 4, page 957.)

The following table shows the country of manufacture of the worsted carding machines and the number of years in operation:

TABLE 50.—*Carding machines in use in worsted mills in the United States.*

Years in operation.	Total carding machines.		Carding machines manufactured in—					
			United States.		England.		Germany.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	658	100.0	331	100.0	251	100.0	76	100.0
Less than 5 years	173	26.3	110	33.3	19	7.6	44	57.9
5 years, but less than 10 years	143	21.7	85	25.7	26	10.3	32	42.1
10 years, but less than 15 years	76	11.5	16	4.8	60	23.9	....	....
15 years, but less than 20 years	61	9.3	51	15.4	10	4.0	....	....
20 years, but less than 25 years	155	23.6	39	11.8	116	46.2	....	....
25 years, but less than 30 years	31	4.7	16	4.8	15	6.0	....	....
30 years and over	19	2.9	14	4.2	5	2.0	....	....

The table shows that of the 658 carding machines, 331, or 50.3 per cent, were manufactured in the United States; 251, or 38.1 per cent, were made in England; and 76, or 11.6 per cent, were made in Germany.

One hundred and seventy-three machines, or 26.3 per cent, were in operation less than 5 years; 219 machines, or 33.2 per cent, were in use 5 years and over, but less than 15 years; 216 machines, or 32.9 per cent, were in use 15 years and over, but less than 25 years; while 50 machines, or 7.6 per cent, were in use 25 to 30 years and over.

The following table shows the productive efficiency of worsted carding machines and operatives, the labor cost per pound, and the average wage rate by establishments:

TABLE 51.—*Productive efficiency of machine and operative, labor cost per pound, and average wage rate, by establishments.*

Establishment.	Average width of card.	Average count of yarn made in mill.	Production per one-man hour.		Labor cost per pound (not including repairs labor).				Average wage rate per hour.			Average number of operatives per card.
			Machine operatives.	All operatives.	Productive.	Nonproductive.		Total.	Machine operatives.	Nonmachine operatives.	Supervisory labor.[1]	
					Machine operatives.	Nonmachine operatives.	Supervisory.[1]					
	Inches		*Lbs.*	*Lbs.*								
No. 1	54	18.05	108.54	43.42	$0.0016	$0.0016	$0.0018	$0.0050	$0.1750	$0.1750	$0.3818	0.67
No. 2	54	19.42	200.78	37.84	.0006	.0025	.0008	.0039	.1134	.1360	.2716	.79
No. 3	54	19.75	326.29	89.24	.0004	.0009	.0006	.0019	.1318	.1507	.2661	.73
No. 4	00	22.78	137.03	53.56	.0009	.0015	.0003	.0027	.1188	.1458	.3690	.46
No. 5	58	24.23	75.86	65.18	.0019	....	.0006	.0025	.1466	....	.2632	.33
No. 6	51	27.00	218.53	70.98	.0006	.0012	.0004	.0022	.1256	.1436	.3259	.49
No. 7	52	31.18	245.07	55.16	.0006	.0017	.0006	.0028	.1191	.1440	.2672	.50
No. 8	55	31.40	208.75	43.22	.0006	.0026	.0004	.0036	.1359	.1490	.3667	.88
No. 9	61	31.60	104.85	34.41	.0010	.0023	.0004	.0037	.1067	.1229	.4464	.64
No. 10	48	31.60	101.05	39.92	.0013	.0014	.0013	.0040	.1300	.1425	.2396	.50
No. 11	52	32.61	88.88	38.38	.0015	.0019	.0006	.0040	.1353	.1502	.3276	.49
No. 12	56	33.13	117.12	56.93	.0011	.0011	.0003	.0025	.1260	.1305	.3407	.53
No. 13	61	38.00	74.94	32.84	.0014	.0023	.0005	.0042	.1044	.1536	.2727	.68
No. 14	60	39.98	91.64	43.23	.0015	.0015	.0008	.0038	.1401	.1471	.3527	1.33
No. 15	48	42.10	47.76	19.67	.0025	.0032	.0012	.0069	.1186	.1299	.2413	.70
No. 16	53	42.58	113.35	65.42	.0009	.0005	.0009	.0023	.1069	.1438	.3252	.48
No. 17	57	27.46	57.05	28.53	.0020	.0011	.0021	.0051	.1158	.1211	.2368	.43

[1] Supervisory labor includes overseers, second hands, third hands, and section hands.

The table shows that the production of machine operatives was lowest for establishment No. 17, being 57.05 pounds per one-man hour, and highest in establishment No. 3, being 326.29 pounds per one-man hour.

The total labor cost was lowest in establishment No. 3, being $0.19 per 100 pounds, and highest in establishment No. 16, being $0.69 per 100 pounds.

The average wage rate for machine operatives was lowest in establishment No. 13, being 10.44 cents per hour, and highest in establishment No. 1, being 17.50 cents per hour.

WOOLEN CARDING.

The schedule used in woolen mills was the same as that used in worsted mills for carding.

In the woolen mills investigated there were 433 sets of cards in operation. They were operated by 299 machine tenders. In other capacities there were 231 nonmachine operatives and 97 persons engaged in supervision.

The following table shows the country of manufacture of woolen cards and the number of years in operation:

TABLE 52.—*Carding machines in use in woolen mills in the United States.*

Years in operation.	Total carding machines.		Carding machines manufactured in—					
			United States.		England.		Germany.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	[1] 433	100.00	399	100.0	20	100.0	[1] 14	100.0
Less than 5 years	40	9.6	37	9.3	3	15.0	....	....
5 years but less than 10 years	62	14.8	62	15.5	....	....	....	....
10 years but less than 15 years	68	16.2	64	16.0	4	20.0	....	....
15 years but less than 20 years	16	3.8	13	3.3	3	15.0	....	....
20 years but less than 25 years	36	8.6	32	8.0	4	20.0	....	....
25 years but less than 30 years	32	7.6	32	8.0	....	....	....	....
30 years and over	165	39.4	159	39.9	6	30.0	....	....

[1] Date of manufacture not reported for 14 machines.

The table shows that of the total of 433 cards, 399, or 92.2 per cent, were manufactured in the United States; 20, or 4.6 per cent, were made in England; and 14, or 3.2 per cent, in Germany. Forty machines, or 9.6 per cent, were in operation less than 5 years; 130 machines, or 31 per cent, were in use 5 years and over but less than 15 years; 52 machines, or 12.4 per cent, were in use 15 years and over but less than 25 years, while 197, or 47 per cent, were in use 25 to 30 years and over.

The table following shows the productive efficiency of woolen carding machines and operatives, the labor cost per pound and per 100 pounds, and the average wage rate, by establishments.

TABLE 53.—*Productive efficiency of machine and operative, labor cost per pound and per 100 pounds, and average wage rate, by establishments.*

Establishment.	Average width of card.	Average run of yarn made in mill.	Production per one-man hour.		Labor cost per pound (not including repairs labor).					Average wage rate per hour.			Average number of operative per set of cards.
			Machine operatives.	All operatives.	Productive.	Nonproductive.		Total cost per pound.	Total cost per 100 pounds.	Machine operatives.	Non-machine operatives.	Supervisory labor.	
					Machine operatives.	Non-machine operatives.	Supervisory.[1]						
	Inches.		*Lbs.*	*Lbs.*									
No. 1...	60	1.29	44.9567	24.3786	$0.0029	$0.0022	$0.0016	$0.0067	$0.67	$0.1315	$0.1626	$0.2973	1.62
No. 2...	40	1.47	57.7065	27.7088	.0023	.0018	.0021	.0062	.62	.1309	.1520	.3162	.79
No. 3...	50	1.57	47.0198	19.6983	.0030	.0037	.0019	.0086	.86	.1421	.1568	.3277	1.14
No. 4...	48	2.02	56.0266	22.6628	.0024	.0024	.0027	.0075	.75	.1362	.1552	.2521	.81
No. 5...	48	2.24	30.4607	16.0233	.0043	.0024	.0040	.0107	1.07	.1304	.1667	.2682	.88
No. 6...	53	2.27	45.4491	16.3554	.0027	.0047	.0022	.0096	.96	.1250	.1554	.2455	1.28
No. 7...	52	2.32	33.7202	16.8024	.0034	.0026	.0032	.0092	.92	.1130	.1400	.2792	1.11
No. 8...	42	2.36	38.2655	16.8349	.0031	.0034	.0028	.0093	.93	.1197	.1592	.4063	.84
No. 9...	53	2.38	25.1445	14.9230	.0065	.0018	.0057	.0140	1.40	.1624	.1561	.3611	1.08
No. 10..	51	2.74	33.2776	15.8286	.0039	.0024	.0043	.0106	1.06	.1300	.1480	.2530	1.36
No. 11..	48	2.90	11.6296	8.7222	.0110	.0033	.0033	.0176	1.76	.1278	.1750	.3500	1.10
No. 12..	55	3.00	31.1758	16.7685	.0038	.0007	.0058	.0103	1.03	.1186	.1200	.2625	.47
No. 13..	40	3.25	50.1221	16.0586	.0025	.0039	.0032	.0096	.96	.1282	.1389	.2201	.78
No. 14..	48	3.40	19.9074	10.3636	.0074	.0047	.0063	.0184	1.84	.1465	.1795	.3195	1.50
No. 15..	40	3.46	43.4596	17.1405	.0028	.0028	.0042	.0098	.98	.1193	.1416	.2768	.64
No. 16..	48	3.50	26.5525	12.7786	.0041	.0037	.0044	.0122	1.22	.1078	.1500	.2771	1.00
No. 17..	44	3.50	30.3032	16.9844	.0032	.0022	.0035	.0089	.89	.0968	.1550	.2971	.70
No. 18..	46	3.70	15.3746	11.1497	.0078	.0022	.0031	.0131	1.31	.1202	.1650	.2786	.92
No. 19..	60	3.74	24.7782	13.7103	.0042	.0038	.0023	.0103	1.03	.1028	.1571	.2708	1.60
No. 20..	50	3.84	28.5138	13.1071	.0041	.0041	.0052	.0134	1.34	.1179	.1477	.3821	1.30
No. 21..	60	3.90	56.0400	18.6800	.0021	.0039	.0031	.0091	.91	.1175	.1450	.3500	.80
No. 22..	64	4.00	27.1875	10.1917	.0053	.0084	.0004	.0141	1.41	.1432	.1424	.1762	3.29
No. 23..	41	4.07	15.9817	10.4027	.0067	.0027	.0027	.0121	1.21	.1064	.1191	.2454	1.18
No. 24..	45	4.49	15.2284	6.7167	.0076	.0070	.0079	.0225	2.25	.1151	.1423	.2027	.88
No. 25..	60	4.72	30.2651	15.8437	.0039	.0027	.0037	.0103	1.03	.1187	.1608	.2733	.90
No. 26..	48	4.82	6.0104	4.2506	.0164	.0063	.0075	.0302	3.02	.0986	.1433	.3050	2.50

[1] Supervisory labor includes overseers, second hands, third hands, and section hands.

The table shows that the production of machine operatives was lowest for establishment No. 26, being 6.01 pounds per one-man hour, and highest in establishment No. 2, being 57.7 pounds per one-man hour.

The total labor cost was lowest in establishment No. 2, being 62 cents per 100 pounds, and highest in establishment No. 26, being $3.02 per 100 pounds.

The average wage rate was lowest in establishment No. 17 for machine operatives, being 9.68 cents per hour, and highest in establishment No. 9, being 16.24 cents per hour.

ENGLISH OR BRADFORD SYSTEM OF COMBING.

In combing, drawing, and spinning worsted yarns two methods or systems are employed—the English or Bradford system, and the French system. The former is employed more commonly in the worsted mills of the United States and England, while the latter is the one used in mills in Continental Europe. However, in recent years the French system has been introduced in this country, and although it is to be found only in a few mills, it is there employed on a large scale.

For the wool-combing or top-making department the following schedule was used:

Persons employed.—Occupation, country of birth, number of males 16 and over and under 16, number of females 16 and over and under 16.

Machines.—Number of back-washing machines, number of preparatory and finisher gill boxes, number of Noble and Lister combs, number of other machines, place (country) and year of make.

Time and earnings.—Total hours worked on product, total amount earned.

Production.—Total pounds fed to machine, pounds of tops produced, pounds of noils produced, pounds of waste produced, description of product.

In the worsted mills investigated, where tops were manufactured by the English system of combing, there were 373 Noble combs and 757 preparatory and finisher gill-box machines in operation. They were operated by 766 Noble comb and gill-box machine tenders. In other capacities there were 147 nonmachine operatives and 110 persons engaged in supervision. In the combing departments, French and Bradford systems combined, 84.5 per cent of the operatives were foreign born, 68.4 per cent being from Italy and eastern and southeastern Europe, while 15.5 per cent were natives of the United States. (See Table 4, page 957.)

The following tables show the country of manufacture of the Noble combs and gill-box machines, and number of years in operation:

TABLE 54.—*Noble combs in use in worsted mills in the United States.*

Years in operation.	Total Noble combs.		Noble combs manufactured in—			
			United States.		England.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent. distribution.
All machines	380	100.0	57	100.0	323	100.0
Less than 5 years	53	14.0	15	26.3	38	11.8
5 years but less than 10 years	136	35.8	11	19.3	[1] 125	38.7
10 years but less than 15 years	18	4.7	4	7.0	[2] 14	4.3
15 years but less than 20 years	46	12.1	8	14.1	[3] 38	11.8
20 years but less than 25 years	43	11.3	6	10.5	37	11.5
25 years but less than 30 years	47	12.4	13	22.8	34	10.4
30 years and over	37	9.7	....	....	37	11.5

[1] Including 1 Lister comb. [2] Including 4 Lister combs. [3] Including 2 Lister combs.

TABLE 55.—*Preparatory and finisher gill boxes (Bradford system) in use in worsted mills in the United States.*

Years in operation.	Total gill boxes.		Preparatory and finisher gill boxes manufactured in—			
			United States.		England.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	[1] 757	100.0	37	100.0	702	100.0
Less than 5 years	137	18.5	5	13.5	132	18.8
5 years but less than 10 years	214	29.0	25	67.6	189	26.9
10 years but less than 15 years	68	9.2	7	18.9	61	8.7
15 years but less than 20 years	66	8.9	....	....	66	9.4
20 years but less than 25 years	116	15.7	....	....	116	16.5
25 years but less than 30 years	71	9.6	....	....	71	10.1
30 years and over	67	9.1	....	....	67	9.6

[1] Including 18 gill boxes place and date of manufacture not reported.

The table for Noble combs shows that of a total of 380 combs in the mills 57, or only 15 per cent, were manufactured in the United States and 323, or 85 per cent, were made in England.

Fifty-three combs, or 14 per cent, were in use less than 5 years, and 154 combs, or 40.5 per cent, 5 years but less than 15 years; 89 combs, or 23.4 per cent, were in use 15 years and over but less than 25 years, while 84 combs, or 22.1 per cent, were in operation 25 to 30 years and over.

The table for gill boxes shows that of the total of 757 in use the place and date of manufacture of 18 was not reported. Of those reported 37, or 4.9 per cent, were manufactured in the United States, and 702, or 95.1 per cent, were made in England. One hundred and thirty-seven gill boxes, or 18.5 per cent, were in use less than 5 years, 282, or 38.2 per cent, 5 years and over but less than 15 years. One hundred and eighty-two, or 24.6 per cent, were in use 15 years and over but less than 25 years, while 138 gill boxes, or 18.7 per cent, were in use 25 to 30 years and over.

The following table of establishments manufacturing tops and arranged in the order of the average count of yarn made in each establishment shows the productive efficiency of the machine and operatives, the labor cost per pound and per 100 pounds, and the average wage rate by establishments:

COMBING DEPARTMENT (BRADFORD SYSTEM).

TABLE 56.—*Productive efficiency of machine and operative, labor cost per pound and per 100 pounds, and average wage rate, by establishments.*

Establishment.	Average count of yarn made in mill.	Production per one-man hour.		Labor cost per pound (not including repairs, labor).					Average wage rate per hour.			Average number of operatives per comb.
				Productive.	Nonproductive.		Total cost.					
		Machine operatives.	All operatives.	Machine operative.	Non-machine operative.	Supervisory.[1]	Per pound.	Per 100 pounds	Machine operatives.	Non-machine operatives.	Supervisory labor.[1]	
		Lbs.	*Lbs.*									
No. 1	18.05	12.8383	11.8633	$0.0069	....	$0.0019	$0.0088	$0.88	$0.0885	....	$0.3000	2.60
No. 2	19.62	16.7320	14.0478	.0069	$0.0010	.0012	.0091	.91	.1146	$0.1436	.2857	3.13
No. 3	19.75	21.3591	15.9069	.0055	.0010	.0019	.0084	.84	.1183	.1316	.2198	2.17
No. 4	22.78	21.0842	15.3774	.0060	.0016	.0016	.0092	.92	.1268	.1404	.2430	2.42
No. 5	27.00	42.0877	28.1327	.0027	.0008	.0013	.0048	.48	.1146	.1167	.2738	1.57
No. 6	27.46	11.8742	11.0618	.0097	....	.0016	.0113	1.13	.1155	....	.2632	2.33
No. 7	31.18	19.2020	13.9439	.0068	.0011	.0029	.0108	1.08	.1303	.1378	.2493	2.09
No. 8	31.40	11.9770	8.6911	.0088	.0030	.0020	.0138	1.38	.1053	.1375	.2027	2.85
No. 9	31.60	13.6761	11.4702	.0093	.0006	.0029	.0128	1.28	.1267	.1425	.3014	2.11
No. 10	32.61	13.0021	8.8124	.0098	.0029	.0043	.0170	1.70	.1286	.1577	.2312	2.84
No. 11	33.13	29.0789	22.8787	.0037	.0007	.0010	.0054	.54	.1079	.1175	.3100	1.66
No. 12	42.00	11.2994	9.9750	.0086	....	.0043	.0129	1.29	.0969	....	.3639	3.25
No. 13	42.10	10.5194	8.2481	.0107	.0021	.0027	.0155	1.55	.1122	.1373	.2568	3.54
No. 14	42.58	18.3477	14.2480	.0058	.0020	.0018	.0096	.96	.1076	.2126	.2763	2.65

[1] Supervisory labor includes overseers, second hands, third hands, and section hands.

The table shows that the production of machine operatives was lowest for establishment No. 13, being 10.51 pounds per one-man hour and highest for establishment No. 5, being 42.08 pounds per one-man hour. The total labor cost was lowest for establishment No. 5, being

48 cents per 100 pounds, and highest for establishment No. 10, being $1.70 per 100 pounds.

The average wage rate was lowest in establishment No. 1 for machine operatives, being 8.85 cents per hour, and highest in establishment No. 7, being 13.03 cents per hour.

FRENCH SYSTEM OF COMBING.

The schedule used for French combing was the same as that for the Bradford system.

In the establishments investigated there were 277 French combs in operation. They were operated by 290 machine tenders. There were also 25 nonmachine operatives and 25 supervisory employees.

The following tables show the country of manufacture of the machines and the number of years in operation:

TABLE 57.—*French combs in use in worsted mills in the United States.*

Years in operation.	Total French combs.		French combs manufactured in—					
			United States.		Germany.		France.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	277	100.0	......	......	255	100.0	22	100.0
Less than 5 years	80	28.9	......	......	60	23.5	20	90.9
5 years but less than 10 years	136	49.1	......	......	136	53.3	......	......
10 years but less than 15 years	......	......	......	......	......	......	......	......
15 years but less than 20 years	2	.7	......	......	......	......	2	9.1
20 years but less than 25 years	59	21.3	......	......	59	23.2	......	......
25 years but less than 30 years	......	......	......	......	......	......	......	......
30 years and over	......	......	......	......	......	......	......	......

TABLE 58.—*Preparatory and finisher gill boxes, French combing, in use in worsted mills in the United States.*

Years in operation.	Total preparing and finishing gill boxes.		Preparing and finishing gill boxes manufactured in—							
			United States.		England.		Germany.		France.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	125	100.0	......	......	3	100.0	90	100.0	32	100.0
Less than 5 years	42	33.6	......	......	3	100.0	26	28.9	13	40.6
5 years but less than 10 years	78	62.4	......	......	......	......	64	71.1	14	43.7
10 years but less than 15 years	3	2.4	......	......	......	......	......	......	3	9.4
15 years but less than 20 years	2	1.6	......	......	......	......	......	......	2	6.3
20 years but less than 25 years	......	......	......	......	......	......	......	......	......	......
25 years but less than 30 years	......	......	......	......	......	......	......	......	......	......
30 years and over	......	......	......	......	......	......	......	......	......	......

The table shows that of the total of 277 French combs, 255, or 92.1 per cent, were made in Germany, and 22, or 7.9 per cent, were made in France.

There were none manufactured in the United States.

Eighty machines, or 28.9 per cent, were in operation less than 5 years; 136, or 49.1 per cent, were in use 5 years and over but less than 15 years; 61, or 22 per cent, were in use 15 years and over but less than 25 years. There were none in use 25 years or over.

The following table shows the productive efficiency of French combing machines and operatives, the labor cost per pound and per 100 pounds, and the average wage rate by establishments:

TABLE 59.—*Productive efficiency of machine and operative, labor cost per pound and per 100 pounds, and average wage rate, by establishments.*

Establishment.	Average count of yarn made in mill.	Production per one-man hour.		Labor cost per pound (not including repairs labor).					Average wage rate per hour.			Average number of operatives per comb.
				Productive.	Nonproductive—		Total cost.					
		Machine operatives.	All operatives.	Machine operatives.	Nonmachine operatives.	Supervisory labor.[1]	Per pound.	Per 100 pounds.	Machine operatives.	Nonmachine operatives.	Supervisory.[1]	
		Lbs.	*Lbs.*									
No. 1	31.60	15.4530	12.5251	$0.0064	$0.0012	$0.0009	$0.0085	$0.85	$0.0982	$0.1074	$0.2285	1.25
No. 2	33.91	20.8407	16.4541	.0062	.0005	.0019	.0086	.86	.1288	.1226	.2289	.85
No. 3	34.78	8.8847	7.8017	.0109	.0020	.0017	.0146	1.46	.0966	.2126	.2775	1.50
No. 4	38.00	13.2120	11.1227	.0080	.0010	.0023	.0113	1.13	.1052	.1182	.3802	1.11
No. 5	39.98	13.7305	12.2716	.0073	.0003	.0020	.0096	.96	.1000	.1151	.3492	1.12

[1] Supervisory labor includes overseers, second hands, third hands, and section hands.

The table shows that the production of machine operatives was lowest for establishment No. 3, being 8.88 pounds per one-man hour and highest in establishment No. 2, being 20.84 pounds per one-man hour.

The total labor cost was lowest in establishment No. 1, being 86 cents per 100 pounds and highest in establishment No. 3, being $1.46 per 100 pounds.

The average wage rate was lowest in establishment No. 3, for machine operatives, being 9.66 cents per hour, and highest in establishment No. 2, being 12.88 cents per hour.

A comparison of total labor cost per 100 pounds of tops made on the English and the French system, although not conclusive in showing whether or not the labor cost is lower on tops made on French combs than on tops made on English or Bradford combs, is nevertheless interesting.

Reference to Tables 56 discloses the fact that establishments 7, 8, and 9 made an average count of yarn of about 31s. The total labor cost per 100 pounds of finished tops made on Bradford system of combing was, in those establishments, $1.08, $1.38, and $1.28, respectively. Establishment No. 1 in the table for French combing made tops, on French combs, that later were spun into yarn, also of an average count of about 31s., and establishment No. 2 made tops, on French combs, for even a finer count of yarn (34s.). Yet the total labor costs per 100 pounds were, in these two establishments, only $0.85 and $0.86, respectively, as compared with $1.08, $1.28, and $1.38 for the establishments making English tops of about the same grade.

In making comparisons care should be taken to compare establishments making about the same average count of yarn, the reason being that for the different counts wools varying in fineness are used. The speed of the circles in the Noble combs vary, in a general way, with the quality of the wool; the finer the wool the slower, in general, the speed of the circles.

BRADFORD SYSTEM OF DRAWING.

For the drawing department the following schedule was used:

Persons employed.—Occupation, country of birth, number of males 16 and over and under 16, number of females 16 and over and under 16.

Drawing frames.—Name, number, place (country), and year of make.

Time and earnings.—Total hours worked on product, total amount earned.

Production.—Pounds produced, description of roving.

In the worsted mills investigated both the English and French systems of drawing are in use, a few mills using both systems. The chief differences between the two systems when employed on similar material, as fine wool, are as follows:

There are more processes in the French system. No twist is employed in the French drawing, while in English or Bradford drawing more or less twist is given to the fibers. Through the use of the porcupine (pins through which the drawing passes) the openness of the fibers is preserved down to the roving. There are fewer drafts or doublings than in the English system. Smaller rollers are employed, which more effectively deal with shorter materials. Owing to the absence of the spindle winding on arrangement there is the minimum straining of the slubbings and little or no production of irregularities.

In both systems the object is the same—to reduce the tops to a thin sliver or roving that can be spun when thus drawn into a fine, even thread.

One of the principal merits of the French system of drawing is the fact that it is better adapted than the English or Bradford system for short, fine wools having staples from 2½ to 6 inches in length, especially for fine wools having staples from 3½ to 4½ inches long. It is significant that in the newer and larger mills in the United States this system of drawing has been introduced on a large scale, and is becoming of greater importance in the industry.

In establishments using the system there were 2,500 drawing frames, and of these 2,148 were in operation. They were operated by 1,275 machine tenders.

In other capacities connected with the drawing there were 346 nonmachine operatives and 105 persons engaged in supervision. In the drawing departments 73.5 per cent of the drawing-frame tenders were foreign born, 47.5 per cent being from Italy and eastern and southeastern Europe, while 26.5 per cent were natives of the United States. (See Table 4, page 957.)

The table following shows the country of manufacture of the drawing frames used for the Bradford system of drawing and the number of years they have been in operation.

TABLE 60.—*Drawing frames (Bradford system) in use in worsted mills in the United States.*

Years in operation.	Total drawing frames.		Drawing frames manufactured in—			
			United States.		England.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	[1] 2,500	100.0	273	100.0	[1] 2,227	100.0
Less than 5 years	797	32.9	153	56.0	644	30.0
5 years but less than 10 years	628	26.0	31	11.4	597	27.8
10 years but less than 15 years	126	5.2	21	7.7	105	4.9
15 years but less than 20 years	434	17.9	35	12.8	399	18.6
20 years but less than 25 years	92	3.8	....	....	92	4.3
25 years but less than 30 years	214	8.9	31	11.4	183	8.5
30 years and over	129	5.3	2	.7	127	5.9

[1] Including 80 machines, date of manufacture not reported.

The table shows that of a total of 2,500 machines, 2,227, or 89.1 per cent were manufactured in England and but 273, or 10.9 per cent, were made in the United States. For 80 machines the year of manufacture was not reported; 797, or 32.9 per cent, were in use less than 5 years; 754, or 31.2 per cent, were in use 5 years and over but less than 15 years; 526, or 21.7 per cent, were in use 15 years and over but less than 25 years; while 343, or 14.2 per cent, were in use 25 to 30 years and over. The following table shows the productive efficiency of the machines and operatives, labor cost per pound and per 100 pounds, and average wage rate, by establishments:

TABLE 61.—*Productive efficiency of machine and operative, labor cost per pound and per 100 pounds, and average wage rate, by establishments.*

Establishment.	Average count of yarn made in mill.	Production per one-man hour.		Labor cost per pound (not including repairs labor).					Average wage rate per hour.			Average number of operatives per drawing frame.
		Machine operatives.	All operatives.	Productive.	Nonproductive.		Total cost.		Machine operatives.	Nonmachine operatives.	Supervisory labor.[1]	
				Machine operatives.	Nonmachine operatives.	Supervisory.[1]	Per pound.	Per 100 pounds.				
		Lbs.	*Lbs.*									
No. 1	18.05	6.4111	5.8683	$0.0142	$0.0010	$0.0027	$0.0179	$1.79	$0.0913	$0.1350	$0.3818	0.59
No. 2	19.42	7.0379	5.8490	.0176	.0024	.0020	.0220	2.20	.1239	.1161	.2481	.50
No. 3	19.75	11.8816	9.3998	.0082	.0016	.0019	.0117	1.17	.0979	.1050	.2820	.76
No. 4	22.78	11.3126	7.9005	.0109	.0034	.0014	.0157	1.57	.1238	.1049	.2452	.66
No. 5	24.23	11.5017	9.3175	.0105	.0020	.0010	.0135	1.35	.1209	.1258	.2241	.37
No. 6	24.39	5.5554	4.4285	.0193	.0043	.0032	.0268	2.68	.1071	.1160	.3667	.88
No. 7	27.00	16.6194	9.5132	.0068	.0040	.0018	.0126	1.26	.1129	.1020	.3071	.89
No. 8	27.46	6.7116	5.8713	.0154	.0006	.0031	.0191	1.91	.1038	.0948	.2016	1.27
No. 9	30.24	13.2245	9.6984	.0095	.0020	.0031	.0146	1.46	.1258	.1000	.4124	.90
No. 10	31.18	11.9176	8.6897	.0116	.0028	.0019	.0163	1.63	.1382	.1167	.2810	.72
No. 11	31.40	10.3753	8.7094	.0126	.0024	.0007	.0157	1.57	.1309	.1470	.3000	1.04
No. 12	31.60	6.9725	6.5359	.0208	....	.0025	.0233	2.33	.1453	....	.2612	.67
No. 13	33.13	7.7411	7.1435	.0162	.0006	.0015	.0183	1.83	.1256	.1600	.2166	.59
No. 14	42.00	5.2406	5.1696	.0180	....	.0014	.0194	1.94	.0944	....	.5272	.47
No. 15	42.10	4.2771	3 7811	.0264	.0016	.0042	.0322	3.22	.1131	.1261	.2345	.65
No. 16	42.58	7.9894	6.3286	.0127	.0018	.0033	.0178	1.78	.1017	.0906	.2478	.61

[1] Supervisory labor includes overseers, second hands, third hands, and section hands.

The table shows that the production of machine operatives was lowest for establishment No. 16, being 4.28 pounds per one man-hour, and highest for establishment No. 7, being 16.62 pounds per one man-hour.

The total labor cost was lowest for establishment No. 3, being $1.17 per 100 pounds and highest in establishment No. 16, being $3.22 per 100 pounds.

The average wage rate per hour was lowest in establishment No. 1 for machine operatives, being 9.13 cents per hour, and highest in establishment No. 12, being 14.53 cents per hour.

In 15 of the 17 establishments shown in the above table, the total labor cost was less than $2.35 per 100 pounds of roving. In comparing data on production and labor cost per pound of roving, it should be remembered that both should, in general, vary with the count of the yarn for which the roving is made. The finer the yarn the finer the roving must be, and as a consequence the greater the number of drafts and of machine operations to produce the finer roving, and the smaller the number of pounds turned off in a given time.

DRAWING (FRENCH SYSTEM).

The schedule for French drawing was the same as for English or Bradford drawing. In the establishments investigated there were 489 French drawing frames in operation. They were operated by 523 machine tenders. There were also 88 nonmachine operatives and 30 of a supervisory force.

The following table shows the country of manufacture of the machines and the number of years in operation.

TABLE 62.—*French drawing frames in use in worsted mills in the United States.*

Years in operation.	Total French drawing frames.		French drawing frames manufactured in—							
			United States.		England.		Germany.		France.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	489	100.0	......	......	261	100.0	192	100.0	36	100.0
Less than 5 years	232	47.5	......	......	138	52.9	94	48.9	......	......
5 years but less than 10 years	76	15.5	......	......	......	......	76	39.6	......	......
10 years but less than 15 years	22	4.5	......	......	......	......	22	11.5	......	......
15 years but less than 20 years	57	11.7	......	......	21	8.0	......	......	36	100.0
20 years but less than 25 years	74	15.1	......	......	74	28.4	......	......	......	......
25 years but less than 30 years	28	5.7	......	......	28	10.7	......	......	......	......
30 years and over	......	......	......	......	......	......	......	......	......	......

The table shows that of a total of 489 machines, 261, or 53.4 per cent, were manufactured in England; 192, or 39.3 per cent, in Germany, and 36, or 7.3 per cent, were made in France. There were none manufactured in the United States.

Two hundred and thirty-two machines, or 47.5 per cent, were in operation less than 5 years. Ninety-eight machines, or 20 per cent, 5 years and over but less than 15 years. One hundred and thirty-one, or 26.8 per cent, were in use 15 years and over but less than 25 years, while 28, or 5.7 per cent, were in use 25 to 30 years and over.

The following table shows the productive efficiency of the machines and operatives, the labor cost per pound and per 100 pounds, and the average wage rate "by establishments."

TABLE 63.—*Productive efficiency of machine and operative, labor cost per pound and per 100 pounds, and average wage rate, by establishments.*

Establishment.	Average count of yarn made in mill.	Production per one-man hour.		Labor cost per pound (not including repairs labor).					Average wage rate per hour.			Average number of operatives per drawing frame.
		Machine operatives.	All operatives.	Productive.	Nonproductive.		Total cost.		Machine operatives.	Nonmachine operatives.	Supervisory labor.[1]	
				Machine operatives.	Nonmachine operatives.	Supervisory.	Per pound.	Per 100 pounds.				
		Lbs.	*Lbs.*									
No. 1	21.11	6.9680	6.0430	$0.0183	$0.0022	$0.0018	$0.0223	2.23	$0.1275	$0.1505	$0.2500	0.62
No. 2	31.60	10.0690	8.6211	.0108	.0009	.0031	.0148	1.48	.1086	.1275	.3339	1.28
No. 3	33.91	10.8247	9.4994	.0122	.0007	.0016	.0145	1.45	.1325	.1110	.2527	.98
No. 4	38.00	8.5990	7 0968	.0123	.0017	.0023	.0163	1.63	.1059	.1099	.2446	1.29
No. 5	39.98	11.3823	8.1657	.0101	.0031	.0017	.0149	1.49	.1152	.1000	.4242	1.71
No. 6	47.14	8.5495	7.3432	.0168	.0015	.0013	.0196	1.96	.1440	.1175	.2000	1.11

[1] Supervisory labor includes overseers, second hands, third hands, and section hands.

The table shows that the production of the machine operatives was lowest for establishment No. 1, being 6.97 pounds per one-man hour and highest for establishment No. 5, being 11.38 pounds per one-man hour.

The total labor cost was lowest for establishment No. 3, being $1.45 per 100 pounds, and highest in establishment No. 1, being $2.23 per 100 pounds.

The average wage rate was lowest in establishment No. 4 for machine operatives, being 10.59 cents per hour, and highest in establishment No. 6, being 14.40 cents per hour.

It has been stated above that in the French system "there are fewer drafts or doublings than in the English system"; that is, less handling and fewer machine operations. There should be, therefore, a lower labor cost per 100 pounds of rovings; and a comparison of Tables 61 and 63, showing labor cost for English drawing and French drawing, respectively, demonstrates this to be so.

FRAME SPINNING (WORSTED).

For the frame-spinning department the following schedule was used:

Persons employed.—Occupation, country of birth, number of males 16 and over and under 16, number of females 16 and over and under 16.

Frame-spinning machines.—Number and kind of frames, number of spindles and speed, number of frames per spinner, number of spindles per spinner, place (country) and year of make.

Time and earnings.—Total hours worked on product, total amount earned.

Production.—Pounds of yarn produced, counts of yarn produced, twists per inch of yarn, description of yarn.

In the establishments investigated in which worsted-frame spinning was carried on there were 1,346 frames equipped with 259,496 spindles. They were operated by 1,702 machine tenders, 1,107 being frame spinners and 595 doffers. There were also 487 nonmachine operatives and 146 of a supervisory force.

In the spinning departments, mule and frame departments combined, of the mills investigated 59.9 per cent of the employees were foreign born, 39.9 per cent being from Italy, eastern and southeastern Europe, while 40.1 per cent were natives of the United States. (See Table 4, page 957.)

The following table shows the country of manufacture of the frame-spinning machines, and the number of years they were in operation:

TABLE 64.—*Spinning frames in use in worsted mills in the United States.*

Years in operation.	Total frames.		Frames manufactured in—					
			United States.		England.		Germany.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	1,346	100.0	113	100.0	1,187	100.0	46	100.0
Less than 5 years	273	20.3	36	31.9	221	18.6	16	34.8
5 years, but less than 10 years	559	41.5	56	49.6	483	40.7	20	43.5
10 years, but less than 15 years	109	8.1	21	18.5	78	6.6	10	21.7
15 years, but less than 20 years	76	5.6	......	......	76	6.4	......	......
20 years, but less than 25 years	98	7.3	......	......	98	8.2	......	......
25 years, but less than 30 years	116	8.6	......	......	116	9.8	......	......
30 years and over	115	8.6	......	......	115	9.7	......	......

The table shows that of the total of 1,346 frame-spinning machines in operation, 113 or 8.4 per cent were manufactured in the United States, 1,187 or 88.2 per cent were made in England, and 46 or 3.4 per cent were made in Germany. Two hundred and seventy-three machines or 20.3 per cent were in operation less than 5 years; 668 machines or 49.6 per cent were in operation 5 years and over but less than 15 years; 174 machines or 12.9 per cent were in operation 15 years and over but less than 25 years, while 231 machines or 17.2 per cent were in use 25 to 30 years and over.

The following table shows the productive efficiency of the machines and operatives, the labor cost per pound, and the average wage rate by establishments:

TABLE 65.—*Productive efficiency of machine and operative, labor cost per pound and per 100 pounds, and average wage rate, by establishments.*

Establishment.	Average count of yarn.	Average twist per inch.	Production.			Labor cost per pound (not including repairs labor).					Average wage rate per hour.			Average number of spindles per operative.
			Per spindle per hour.	Per one-man hour.		Productive. Machine operatives.	Nonproductive.		Total cost.		Machine operatives.	Nonmachine operatives.	Supervisory labor.[1]	
				Machine operatives.	All operatives.		Nonmachine operatives.	Supervisory.[1]	Per pound.	Per 100 pounds.				
			Lbs.	*Lbs.*	*Lbs.*									
No. 1	18.05	5.35	0.0586	5.6532	4.9111	$0.0113	$0.0011	$0.0028	$0.0152	$1.52	$0.0639	$0.0569	$0.3818	86
No. 2	19.62	12.09	.0381	3.2705	2.3778	.0298	.0089	.0047	.0434	4.34	.0975	.0934	.2485	67
No. 3	19.75	8.50	.0726	8.5459	7.0183	.0101	.0015	.0022	.0138	1.38	.0865	.0970	.2113	103
No. 4	22.78	9.60	.0643	11.5992	7.5240	.0115	.0040	.0025	.0180	1.80	.1329	.1085	.2654	130
No. 5	24.23	9.60	.0263	4.7018	2.9651	.0251	.0121	.0059	.0431	4.31	.1178	.1161	.2878	120
No. 6	24.39	12.70	.0166	5.2850	3.6511	.0181	.0050	.0042	.0273	2.73	.0955	.0731	.2533	236
No. 7	24.44	8.80	.0390	3.7675	2.9609	.0303	.0050	.0069	.0422	4.22	.1141	.1071	.2775	82
No. 8	27.00	10.60	.0504	8.3653	5.9431	.0121	.0040	.0031	.0192	1.92	.1016	.1063	.2768	122
No. 9	27.46	11.40	.0264	4.1086	3.0493	.0209	.0055	.0071	.0335	3.35	.0858	.1013	.2329	126
No. 10	29.90	12.30	.0281	3.7940	3.3401	.0260	.0033	.0029	.0322	3.22	.0988	.1171	.3723	121
No. 11	31.18	12.70	.0435	7.8873	5.6858	.0155	.0039	.0032	.0226	2.26	.1222	.1058	.2583	136
No. 12	31.60	11.50	.0379	5.3762	3.8850	.0200	.0065	.0044	.0309	3.09	.1076	.1229	.2352	112
No. 13	32.61	13.18	.0292	5.1142	3.4543	.0245	.0081	.0091	.0417	4.17	.1250	.1177	.3675	130
No. 14	33.13	15.60	.0283	4.6408	3.9112	.0271	.0041	.0036	.0348	3.48	.1259	.1490	.2823	135
No. 15	42.00	9.00	.0266	4.2314	3.3633	.0258	.0040	.0058	.0356	3.56	.1092	.0970	.2880	137
No. 16	42.10	14.42	.0339	3.2127	2.4647	.0341	.0070	.0055	.0466	4.66	.1096	.1040	.2007	77
No. 17	42.58	12.90	.0327	4.3546	3.7330	.0211	.0022	.0030	.0263	2.63	.0919	.0778	.2929	111

[1] Supervisory labor includes overseers, second hands, third hands, and section hands.

The table shows that the production per spindle was lowest for establishment No. 6, being 1.66 pounds per spindle per 100 hours, and highest for establishment No. 3, being 7.26 pounds per spindle per 100 hours.

The production of machine operatives was lowest for establishment No. 16, being 3.21 pounds per one-man hour, and highest in establishment No. 4, being 11.60 pounds per one-man hour.

The total labor cost was lowest in establishment No. 3, being $1.38 per 100 pounds, and highest in establishment No. 16, being $4.66 per 100 pounds. The average wage rate for machine operatives was lowest in establishment No. 1, being 6.4 cents per hour, and highest in establishment No. 4, being 13.3 cents per hour.

Detailed comparisons should be made only for establishments producing about the same average counts of yarn with about the same twist per inch.

For example, establishments 2 and 3 produced approximately the same average counts, 19.62 and 19.75, respectively. There was, however, a marked difference in the pounds of yarn produced per spindle per 100 hours, 7.26 pounds in mill No. 3 and 3.81 pounds in mill No. 2. It is interesting to note that mill No. 3 is a large mill devoted exclusively to making yarns, while mill No. 2 is primarily a weaving mill and makes only such yarns as it requires. The total number of frame spindles in both mills was approximately equal, and they were practically all cap spindles. Furthermore, the average number of spindles tended by one spinner was approximately the same in both establishments.

This marked difference in production per spindle per 100 hours is probably due, in a degree, to the fact that the mill showing the higher production is engaged exclusively in the manufacture of yarn, while the other is not, and that during the periods covered by our data the mill with the higher production was engaged largely in making a few counts of yarn while the other mill spun a considerable variety of counts. But another factor of great importance—twist per inch—accounts in a very large degree for the marked difference shown. The mill having the smaller production spun its yarn with an average of about 12 turns to the inch, while the other mill spun yarn with only 8.5 twists per inch.

That the production per spindle per 100 hours in mill No. 3 is not abnormal is indicated by data supplied by mill No. 11. This establishment keeps a detailed weekly record of the number of spindles spinning each count of yarn, and the number of hours; and is able to show pounds of each count of yarn produced per spindle per week. The records of the frame-spinning department of this establishment for a typical week show that the average production per spindle per 56 hours for yarn having an actual count of 19.86 and approximately the same average twist was 4.17 pounds. This is equivalent to a production of 7.44 pounds per spindle per 100 hours, as compared with 7.26 for establishment No. 3.

Establishments Nos. 5 and 6 produce yarns of average counts of 24.23 and 24.39, respectively. The production per spindle per 100 hours was, in establishment No. 5, 2.63 pounds and in establishment No. 6, 1.66 pounds. This difference is largely, if not entirely, accounted for by the fact that the yarn made by mill No. 6 had more twist than the yarn spun in mill No. 5—12.7 turns per inch as compared with 9.6 turns per inch.

Establishments Nos. 16 and 17 spin about the same size and twist of worsted yarn (about 42s) (42.10 and 42.58, respectively).

Both mills have cap spinning frames exclusively. Mill No. 16 makes yarns for its own weaving plant, while mill No. 17 is engaged exclusively in the manufacture of yarn for the general trade. The former is not in or near a center of woolen or worsted manufacture, but the latter is located in one of the principal centers of the industry in this country. As a result of its more favorable location mill No. 17 is enabled to secure an abundance of skilled labor at a moderate rate of wages, while mill No. 16 must pay higher wages to less skilled operatives. Because of the fact that the operatives in mill No. 16 are largely unskilled, more hands are required to operate a given number of spindles.

As an inevitable result of these conditions, mill No. 16 shows a much higher total labor cost per 100 pounds than mill No. 17—$4.66 as compared with $2.63.

It is interesting to note that mills devoted exclusively to the manufacture of yarns attained a higher production per spindle per 100 hours. This is true also of establishments which are large producers of yarn, although they also do weaving. In these two groups are included establishments Nos. 1, 3, 4, 11, 13, 14, and 17.

The average wage rate per hour for machine operatives is lowest for establishment No. 1, being only 6.39 cents. In this mill young female labor is employed at low rates. In all of the mills where the average wage rate per hour for machine operatives fell below 10 cents, a majority of the operatives were females. It is interesting also to observe that in these mills the average wage rate per hour for nonmachine operatives was nearly as high (in several cases higher) as the machine operatives.

MULE SPINNING, WORSTED.

For the mule spinning departments the following schedule was used:

Persons employed.—Occupation, country of birth, number of males 16 and over and under 16, number of females 16 and over and under 16.

Mules spinning machines.—Number, number of spindles, number of spindles per mule, number of spindles per spinner, place (country), and year of make.

Time and earnings.—Total hours worked on product, total amount earned.

Production.—Pounds of yarn produced, count of yarn, twists per inch of yarn, description of yarn.

In the establishments investigated in which mule spinning was carried on there were 370 mules in operation equipped with 238,688 spindles. They were operated by 1,069 machine operatives, 214 being mule spinners and 855 mule spinners' helpers, joiners, piecers, doffers, and back boys. There were also 69 nonmachine operatives and 35 persons in the supervisory force. The average number of spindles per spinner was 1,115, and the average number of spindles per mule was 645. Of the total of 1,173 persons, 573 were males 16 years of age and over, 20 males under 16; 573 also were females 16 years of age and over and 7 females under 16.

The following table shows the country of manufacture of mule spinning machines and the number of years they were in operation:

TABLE 66.—*Worsted mules in use in mills in the United States.*

Years in operation.	Total mules.		Mules manufactured in—							
			United States.		England.		Germany.		France.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	370	100.0	......	......	263	100.0	101	100.0	6	100.0
Less than 5 years	92	24.9	......	......	74	28.1	18	17.8	......	......
5 years but less than 10 years	121	32.7	......	......	60	22.8	61	60.4	......	......
10 years but less than 15 years	12	3.2	......	......	4	1.5	8	7.9	......	......
15 years but less than 20 years	34	9.2	......	......	28	10.7	......	......	6	100.0
20 years but less than 25 years	100	27.0	......	......	86	32.7	14	13.9	......	......
25 years but less than 30 years	11	3.0	......	......	11	4.2	......	......	......	......
30 years and over	......	......	......	......	......	......	......	......	......	......

The table shows that of the total of 370 mule spinning machines in operation 263, or 71.1 per cent, were manufactured in England; 101, or 27.3 per cent, in Germany; and 6, or 1.6 per cent, in France. None were manufactured in the United States. Of the total number 92 machines, or 24.9 per cent, were in operation less than 5 years; 133, or 35.9 per cent, 5 years and over but less than 15 years; 134, or 36.2 per cent, for 15 years and over but less than 25; while 11, or 3 per cent, were in operation from 25 to 30 years and over.

The following table shows for each establishment the average count of yarn made, the average twists per inch, the number of pounds produced per spindle per hour, and per one-man hour for machine operatives, and for all operatives including supervisory.

It also shows the labor cost per pound (not including repairs labor) for machine operatives, nonmachine operatives, supervisory, and total labor cost, together with the average wage rate per hour for these groups of operatives:

TABLE 67.—*Productive efficiency of machine and operative, labor cost per pound and per 100 pounds, and average wage rate, by establishments.*

Establishment.	Average count of yarn.	Production.			Labor cost per pound (not including repairs labor).					Average wage rate per hour.			Average number of spindles per operative.
		Per spindle per hour.	Per one-man hour.		Productive.	Nonproductive.		Total cost.		Machine operatives.	Nonmachine operatives.	Supervisory labor[1].	
			Machine operatives.	All operatives.	Machine operatives.	Nonmachine operatives.	Supervisory.[1]	Per pound.	Per 100 pounds				
		Pounds	*Pounds*	*Pounds*									
No. 1...	21.11	0.0226	7.7794	6.1204	$0.0172	$0.0037	$0.0015	$0.0224	$2.24	$0.1340	$0.1253	$0.2679	268
No. 2...	30.24	.0199	9.1771	6.8145	.0165	.0029	.0034	.0228	2.28	.1515	.0975	.4124	340
No. 3...	31.40	.0224	8.5349	6.8715	.0203	.0031	.0013	.0247	2.47	.1731	.1421	.1953	322
No. 4...	31.60	.0206	3.8683	3.3119	.0328	.0051	.0031	.0410	4.10	.1268	.1422	.4221	163
No. 5...	33.91	.0232	9.5594	8.6276	.0201	.0005	.0018	.0224	2.24	.1925	.1080	.2805	369
No. 6...	34.78	.0144	3.5248	2.5393	.0386	.0077	.0157	.0620	6.20	.1359	.1170	.3566	184
No. 7...	38.00	.0228	3.9903	3.7613	.0344	.0014	.0023	.0381	3.81	.1371	.1706	.3311	148
No. 8...	39.98	.0192	2.8335	2.7206	.0450	.0018	.0018	.0486	4.86	.1275	.1659	.4545	143
No. 9...	47.14	.0167	7.3303	6.3896	.0253	.0013	.0030	.0296	2.96	.1855	.1286	.3090	400

[1] Supervisory labor includes overseers, second hands, third hands, and section hands.

The table shows that the production per spindle was lowest for establishment No. 6, being 1.44 pounds per spindle per 100 hours, and highest for establishment No. 5, being 2.32 pounds per spindle per 100 hours.

The production of machine operatives was lowest for establishment No. 8, being 2.83 pounds per one-man hour, and highest for establishment No. 5, being 9.56 pounds per one-man hour.

The total labor cost was lowest for establishments Nos. 1 and 5, being $2.24 per 100 pounds in each, and highest in establishment No. 6, being $6.20 per 100 pounds.

The average wage rate for machine operatives was lowest in establishment No. 4, being 12.68 cents per hour, and highest in establishment No. 5, being 19.25 cents per hour. In comparing costs and production the average count of yarn and the average twists per inch should always be considered.

MULE SPINNING, WOOLEN.

The schedule used for carded wool mule spinning was the same in form as that used for worsted mule spinning.

In the establishments investigated there were 580 woolen mules in operation equipped with 196,551 spindles. They were operated by 580 machine operatives. There were also 197 nonmachine operatives and 61 of a supervisory force.

The following table shows the country of manufacture of the machines and the number of years in operation:

TABLE 68.—*Carded wool mules in use in mills in the United States.*

Years in operation.	Total mules.		Mules manufactured in—					
			United States.		England.		Germany.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	588	100.0	504	100.0	36	100.0	48	100.0
Less than 5 years	47	8.0	41	8.2	....	....	6	12.5
5 years but less than 10 years	204	34.7	169	33.5	9	25.0	26	54.1
10 years but less than 15 years	143	24.3	130	25.8	5	13.9	8	16.7
15 years but less than 20 years	72	12.3	58	11.5	8	22.2	6	12.5
20 years but less than 25 years	47	8.0	45	8.9	....	....	2	4.2
25 years but less than 30 years	53	9.0	53	10.5	....	....	....	....
30 years and over	22	3.7	8	1.6	14	38.9	....	....

The table shows that of a total of 588 mules in the establishments (580 in operation), 504, or 85.7 per cent, were manufactured in the United States; 36, or 6.1 per cent, in England; and 48, or 8.2 per cent, in Germany.

Forty-seven machines, or 8 per cent of the total, were in operation less than five years. Three hundred and forty-seven machines, or 59 per cent, were in operation five years and over but less than 15 years. One hundred and nineteen, or 20.3 per cent, were in use 15 years and over but less than 25 years, while 75 machines, or 12.7 per cent, were in operation 25 to 30 years and over.

The following table shows the productive efficiency of the machines and operatives, the labor cost per pound and per 100 pounds, and the average wage rate, by establishments:

TABLE 69.—*Productive efficiency of machine and operative, labor cost per pound and per 100 pounds, and average wage rate, by establishments.*

Establishment.	Average run made in mill.	Production.			Labor cost per pound (not including repairs labor).					Average wage rate per hour.			Average number of spindles per operative.
		Per spindle per hour.	Per one-man hour.		Productive.	Nonproductive.		Total cost.		Machine operatives.	Non-machine operatives.	Supervisory labor.[1]	
			Machine operatives.	All operatives.	Machine operatives.	Non-machine operatives.	Supervisory.[1]	Per pound.	Per 100 pounds.				
		Lbs.	*Lbs.*	*Lbs.*									
No. 1...	1.29	0.0781	23.5350	14.9001	$0.0077	$0.0034	$0.0009	$0.0120	$1.20	$0.1822	$0.1540	$0.3725	185
No. 2...	1.47	.0769	27.8340	18.1334	.0078	.0025	.0015	.0118	1.18	.2174	.1715	.3258	255
No. 3...	1.57	.0614	23.3527	15.3154	.0097	.0027	.0007	.0131	1.31	.2272	.1312	.3621	262
No. 4...	2.02	.0637	20.5861	15.8085	.0093	.0015	.0015	.0123	1.23	.1923	.1552	.2845	267
No. 5...	2.24	.0603	20.5172	12.4607	.0079	.0021	.0028	.0128	1.28	.1619	.1125	.2250	247
No. 6...	2.27	.0584	24.8741	16.7509	.0098	.0034	.0007	.0139	1.39	.2448	.1878	.4267	299
No. 7...	2.32	.0514	20.8879	14.4060	.0091	.0020	.0016	.0127	1.27	.1910	.1363	.2379	315
No. 8...	2.36	.0576	22.3174	12.4270	.0111	.0048	.0018	.0177	1.77	.2468	.1612	.3075	230
No. 9...	2.38	.0458	15.6319	11.0184	.0131	.0022	.0050	.0203	2.03	.2048	.1814	.3373	284
No. 10..	2.74	.0518	14.1169	9.2275	.0131	.0039	.0028	.0198	1.98	.1854	.1452	.2586	197
No. 11..	2.90	.0500	21.4320	11.8715	.0089	.0028	.0034	.0151	1.51	.1896	.1187	.2425	273
No. 12..	3.25	.0411	13.9696	10.7459	.0161	.0022	.0021	.0204	2.04	.2256	.1518	.2946	283
No. 13..	3.40	.0405	15.7340	10.0495	.0147	.0031	.0033	.0211	2.11	.2308	.1296	.2746	285
No. 14..	3.43	.0416	14.1600	9.4298	.0129	.0028	.0028	.0185	1.85	.1829	.1052	.3103	255
No. 15..	3.46	.0407	15.2261	11.2916	.0159	.0019	.0025	.0203	2.03	.2418	.1401	.2723	308
No. 16..	3.50	.0299	13.7090	9.8222	.0142	.0019	.0033	.0194	1.94	.1946	.1313	.2313	361
No. 17..	3.50	.0472	14.8124	11.3401	.0118	.0011	.0044	.0173	1.73	.1752	.1600	.3168	290
No. 18..	3.70	.0272	13.0547	7.7030	.0133	.0033	.0054	.0220	2.20	.1736	.0955	.2888	321
No. 19..	3.74	.0212	5.3204	4.3821	.0252	.0043	.0052	.0347	3.47	.1344	.1788	.3173	206
No. 20..	3.84	.0366	13.4380	9.1552	.0128	.0036	.0033	.0197	1.97	.1722	.1486	.3196	253
No. 21..	4.00	.0463	8.4774	7.6664	.0137	.0012	.0011	.0160	1.60	.1164	.1238	.4053	168
No. 22..	3.90	.0287	20.6600	11.8057	.0084	.0021	.0036	.0141	1.41	.1723	.0875	.3000	480
No. 23..	4.07	.0323	12.6169	7.9591	.0111	.0032	.0033	.0176	1.76	.1395	.0977	.2396	267
No. 24..	4.49	.0308	10.0538	6.9521	.0162	.0021	.0081	.0264	2.64	.1629	.1422	.2741	294
No. 25..	4.72	.0395	14.5907	10.8903	.0184	.0023	.0031	.0238	2.38	.2690	.1658	.3232	320
No. 26..	4.82	.0284	8.1774	5.1690	.0242	.0080	.0039	.0361	3.61	.1982	.1476	.2250	209

[1] Supervisory labor includes overseers, second hands, third hands, and section hands.

The table shows that the production per spindle was lowest for establishment No. 19, being 2.12 pounds per spindle per 100 hours and highest for establisment No. 1, being 7.81 pounds per spindle per 100 hours. The average number of yarn in establishment No. 19 was 3.74 runs and in establishment No. 1, 1.29 runs.

The production of machine operatives was lowest for establishment No. 19, being 5.32 pounds per one-man hour, and highest in establishment No. 2, being 27.83 pounds per one-man hour.

The total labor cost was lowest for establishment No. 2, being $1.18 per 100 pounds, and highest for establishment No. 26, being $3.61 per 100 pounds.

The average wage rate was lowest in establishment No. 21 for machine operatives, being 11.64 cents per hour, and highest in establishment No. 25, being 26.90 cents per hour.

It will be noted that in 17 of the 26 establishments shown in the above table the total labor cost per 100 pounds was less than $2 and that in only two establishments (Nos. 19 and 26) did the total labor cost exceed $3 per 100 pounds.

In making comparisons of data in the above table, account must be taken of the differences in size of yarn (expressed in terms of runs—1 run being 1,600 yards in 1 pound and 2 runs being 3,200 yards in 1 pound and so on) and the average number of twists per inch of yarn, for the higher the runs the finer the yarn and as a consequence the smaller the production in pounds.

THE RELATIVE EFFICIENCY OF FOREIGN AND DOMESTIC MACHINERY

The following tables summarizes the machines from wool scouring to weaving, inclusive, in use in establishments, giving the numbers manufactured in the United States and foreign countries, together with the number of years they have been in operation:

TABLE 70.—*Looms in use in woolen and worsted mills in the United States.*

Years in operation.	Total looms.		Looms manufactured in—					
			United States.		England.		Germany.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All machines	12,337	100.0	9,517	100.0	2,713	100.0	107	100.0
Less than 5 years	4,125	33.4	3,751	39.4	374	13.8	....	....
5 years but less than 10 years	1,244	10.0	697	7.3	440	16.2	107	100.0
10 years but less than 15 years	2,009	16.3	1,426	15.0	583	21.5	....	....
15 years but less than 20 years	2,072	16.8	1,090	11.5	982	36.2	....	....
20 years but less than 25 years	2,053	16.7	1,937	20.3	116	4.3	....	....
25 years but less than 30 years	396	3.2	388	4.1	8	.3	....	....
30 years and over	438	3.6	228	2.4	210	7.7	....	....

AMERICAN AND FOREIGN MACHINERY.

TABLE 71.—*Number and per cent of the principal woolen and worsted mill machines used in the industry of native and foreign manufacture, with number of years in operation.*

Name of machines.	Total machines.	Manufactured in—				Years in operation.							
		United States.		Foreign countries.		Less than 5 years.		5 years and over but less than 15.		15 years and over but less than 25.		25 to 30 years and over.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Scouring machines	67	37	55.2	30	44.8	11	16.4	43	64.2	10	14.9	3	4.5
Carding machines, woolen	[1] 433	399	92.2	34	7.8	40	9.6	130	31.0	52	12.4	197	47.0
Carding machines, worsted	658	331	50.3	327	49.7	173	26.3	219	33.2	216	32.9	50	7.6
Gill boxes, English (Bradford) combing	[2] 757	37	5.0	702	95.0	137	18.5	282	38.2	182	24.6	138	18.7
Gill boxes, French combing	125	......	......	125	100.0	42	33.6	81	64.8	2	1.6	......	......
Noble combs	380	57	15.0	323	85.0	53	14.0	154	40.5	89	23.4	84	22.1
French combs	277	......	......	277	100.0	80	28.9	136	49.1	61	22.0	......	......
English (Bradford) drawing frames	[3] 2,500	273	10.9	2,227	89.1	797	32.9	754	31.2	526	21.7	343	14.2
French drawing frames	489	......	......	489	100.0	232	47.5	98	20.0	131	26.8	28	5.7
Spinning frames	1,346	113	8.4	1,233	91.6	273	20.3	668	49.6	174	12.9	231	17.2
Mules, carded wool	588	504	85.7	84	14.3	47	8.0	347	59.0	119	20.2	75	12.8
Mules, worsted	370	......	......	370	100.0	92	24.9	133	35.9	134	36.2	11	3.0
Total	7,990	1,751	22.0	6,221	78.0	1,977	25.1	3,045	38.7	1,696	21.5	1,160	14.7
Weaving looms	12,337	9,517	77.1	2,820	22.9	4,125	33.4	3,253	26.3	4,125	33.5	834	6.8

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[1] Date of manufacture not reported for 14 machines.
[2] Including 18 Gill boxes, place and date of manufacture not reported.
[3] Including 80 drawing frames, place and date of manufacture not reported.

The table shows that in the establishments investigated there were 7,990 scouring, carding, combing, drawing, and spinning machines and 12,337 looms.

Of the 7,990 machines which manipulate the wool fiber from its condition in the grease until it is a finished thread ready for weaving, 6,221 machines, or 78 per cent, are of foreign manufacture, while 1,751, or 22 per cent, are of American manufacture.

Excluding carded wool cards and carded wool mules, the per cent of machinery in use manufactured in foreign countries is 87.8 per cent. The explanation of the great use of foreign machinery in the mills (in some departments its exclusive use) given by the establishments visited was that while the importation of these machines increased their cost more than 60 per cent above that of their foreign competitors in the woolen and worsted industry, it was necessary to buy abroad, since with the exception of looms and some few other machines American manufacturers had not been able to furnish machines approaching in results the work done by the foreign machines.

Each of these machines, excepting the looms, is of large size and requires considerable floor space and substantial foundation. In addition to the above, there are a number of others of lesser importance in the above departments, together with the very important machines used in the dyeing and finishing departments, necessarily excluded in the study of machine and operative efficiency through lack of definite quantities of production.

A study of the above table and the tables showing country of birth of employees and their occupations show that the woolen and worsted industry in the United States is largely dependent upon machines of foreign manufacture and upon foreign-born labor for their operation.

Table 71 shows the number of years the machines have been in operation in the mills. From this it appears that 1,977 machines, or 25.1 per cent, have been in operation less than 5 years; 3,045 machines, or 38.7 per cent, 5 years and over, but less than 15 years; 1,696 machines, or 21.5 per cent, 15 years and over, but less than 25 years; and 1,160 machines, or 14.7 per cent, were in operation 25 to 30 years and over.

Table 71 further shows that 1,160, or 14.7 per cent, of the machines in the various departments have been in use from 25 to 30 years and over and other large groups for a lesser number of years. As a rule the working parts of the machines are separable.

Table 70 also shows that of the 12,337 looms in operation in the mills investigated, 9,517, or 77.1 per cent, were manufactured in the United States and 2,820 were made in foreign countries; 2,713 of the latter were made in England and 107 in Germany.

Four thousand one hundred and twenty-five looms, or 33.4 per cent, had been in operation less than 5 years; 1,244, or 10 per cent, 5 years and over but less than 10 years; 2,009, or 16.3 per cent, 10 years and over but less than 15 years, while 4,125 looms, or 33.5 per cent, have been in operation 15 years and over but less than 25 years. Eight hundred and thirty-four looms, or 6.8 per cent, have been in use from 25 to 30 years and over.

To maintain the machines in efficient condition, new parts are kept in stock in the establishments and the worn parts are renewed when needed. Each mill has its mechanical department and in the mills investigated a total force of 1,039 machinists, blacksmiths, etc., were employed to keep the machinery in good working condition; 36.8 per cent of this mechanical force earned from 25 to 30 cents an hour and over; 768, or 73.9 per cent, earned from 20 to 30 cents an hour and over; while 271, or 21.1 per cent, earned less than 20 cents an hour.

A manufacturer using American, English, and German looms in his mills, comparing their relative merits made the following statement:

> We weave the most intricate patterns and finest goods on our German looms. For the very best goods which we produce we could not use the looms which we bought in the United States. Some of our English looms are used especially for the weaving of high-grade fancy goods and we consider them also better, for this purpose, than the American looms. The other English looms, and the American looms, are used for the weaving of less difficult goods which we produce in large quantities. These looms are not at all adapted for the very fine goods. For these we must use German looms, which are absolutely unsurpassed for regularity of weaving. In equipping our plant we seriously thought of buying English looms in place of the American, because the American looms were very little cheaper, and we only decided in favor of the American looms because we wished to buy as much as we could from American manufacturers and because in the case of need reserve parts could be more quickly obtained than by importing them from Europe.
>
> The speed of the American and English looms is higher than that of the German looms, but the work which is done on the German looms requires accuracy and fineness more than speed, and requires great attention on the part of the operatives, so that the looms could not be run at such high speed. In case of an increase in the kind of work done on these looms, so that new looms were needed, they would have to be imported from Germany, as before, because looms suitable for that kind of work can not be obtained in this country.

Another manufacturer discussing looms and machinery and one of the principal reasons for the increasing use of broad looms, and to some extent the use of automatic looms on cotton-warp worsteds, made the following statement:

> The old mills for all practical running purposes are as good as the new. There are certain wearing parts in a machine which if renewed from time to time keep the machine as good as new. This will apply to all machinery. Where the mill has a good machine shop and where the standard of mechanical conditions is high whenever a machine is not "right" it will be stopped and made "right." If that is maintained age is not serious. We recently threw out a lot of old English looms because certain parts were worn out. When those parts show wear you get irregularities in your cloth. It is better to let the loom go than have to renew all of the parts. Many of the looms that have been thrown out in the worsted mills in the past 12 years were good looms.
>
> There has been quite a change from narrow looms to wide ones. We have thrown out a good many narrow looms simply because wider goods were wanted.
>
> Over 50 per cent of the dresses, probably from 60 to 70 per cent, of the dresses worn by ladies are bought made up. The dress goods jobbers in the Missouri Valley two and a half years ago were very much wrought up over their loss in the dress-goods trade, and they were arranging for the establishment of dressmaking schools at different centers along the Missouri Valley, the idea being to teach women to dressmake free of charge, the only condition being that they locate along the Missouri Valley. They claimed it was very difficult to have dresses made, and if they had some smart people along the district they might stimulate the dress-goods business. But it was simply a temporary stemming of the tide. The made-up garment has come to stay, and for this reason: The woman in the country, although she may be a good dressmaker, is not in touch with the styles. Now, the woman in the country who has been tied up to a country dressmaker feels ashamed when she visits the city and sees the nice styles—she knows she is a country woman. But what she does now is this: Instead of having her dress made up she buys it when she is in the city, and her suit is then as good as the best of them. Some women are poor judges of how material can be made up. The average woman is afraid to get away from her brown, or navy blue, or black; but when she goes to the store and sees the suits she will try one on and take it even if it is of a color she would never risk before.
>
> The cutters who make these ready-to-wear garments or made-to-order suits use 50, 54, and 56 inch goods which have to be made on the broad looms. So that is why this modern method of making suits has had something to do with the use of the broad looms, because the country requires wide goods. Twenty years ago we had a thousand looms on Jacquard that would weave goods 32 inches wide. The demand has absolutely gone. The cloth that is wanted now for dress goods must be from 40 to 56 inches wide, and the cutter rarely takes anything less than 50 inches.

THE EFFICIENCY OF AMERICAN WEAVERS.

In American worsted and woolen mills the weavers, male and female, operate one or two looms as a rule, excepting where worsted dress goods are made with cotton warps. Cotton warp being stronger than woolen or worsted makes it possible to use automatic, or "weft replenishing" looms, so that one weaver can operate as many as 12 looms in the manufacture of worsted dress goods.

Weavers in the United States are pieceworkers. They are paid for the yardage they produce. Usually the piece price per yard is fixed by a scale, based upon the number of picks per inch in the fabric woven, the speed of the loom, the number of looms operated by the weaver, the quality of warp and weft, the number of shuttles and harness also being factors in regulating the price. While the weavers in most mills are paid each week the amount credited to them for the work of the previous week, they are not paid for the actual yardage they produced during the hours they worked in that week. The yardage woven is taken off the loom at intervals during the week in "cuts" or "pieces" of varying lengths of from 50 to 65 yards, though often less. This yardage is weighed and measured by the "percher" and examined. The weaver is paid for this measured yardage. The yards woven on Friday or Saturday and still in the loom Monday morning when weaving is resumed are taken out of the loom on Monday or Tuesday and credited to the current week's work. For these reasons the exact production of the weaver in the actual number of hours worked, with the earnings at the piece price per yard, are not known by the mill officials, nor by the weaver.

The method generally used as a basis for the presentation of the earnings of weavers is to copy the amounts credited to each weaver for two or more weeks. An hourly rate of pay is ascertained by dividing the amounts credited by the number of hours the weaver was in the mill. As the weaver's productive capacity and earnings cease when the loom stops, the earnings thus ascertained can not take into account the idle time of the weaver waiting for new warp to be put in (an operation generally requiring several hours) or waits for filling, or fixer's time for repairs if the loom breaks down.

If a weaver actually works 50 hours and is idle from any one or more of the above causes for a total of 10 hours in a week of 60 hours, the hourly rate of pay derived from the earnings credited will be on the basis of his working and idle or nonproducing time in the mill combined. The idle time from the causes above mentioned is no fault of the weaver. If the weaver has to wait for filling, this loss of time must be charged to lack of efficiency on the part of the establishment.

If the loom can not weave the fabric properly and the weaver has to stop the loom and the loom fixer's services are required, this idle time of the weaver must also be charged to the inefficiency of the establishment.

The putting in of new warps causes the greatest loss of time to the weaver, for which he is no wise responsible. To what extent establishments are responsible it is difficult to say, but certain it is that they have not overcome the delay nor has any invention yet been devised to prevent it.

While not responsible for the enforced idleness from the causes named, the weaver is responsible for his failure to get the maximum product the loom is capable of when in good working order after taking the quality of the warp and filling used and other factors into account.

In order to ascertain to what extent the weavers in American woolen and worsted mills were efficient and capable in the production of fabrics which entered into competition with similar fabrics made by weavers in competitive countries, the Tariff Board undertook a searching investigation of the subject, ignoring the average productive mill efficiency of all of the weavers, which meant but little, and going directly to the root of the question by ascertaining exactly what each and every individual weaver was producing and measuring the time of his productive movements.

To do this it was necessary that the exact number of yards woven and the time used in the weaving be obtained. The mill records did not contain this information. These important data were secured in each mill for all of the weavers employed, excepting those engaged on pattern weaving, learners, and such others as were not engaged in the regular production of the establishment. The method used was as follows:

When the mill shut down on Saturday afternoon the overseer of the weaving department, or other competent person acting in cooperation with the agents of the Tariff Board, drew a colored chalk line across the cloth in the loom where the weaver had ceased weaving, so that the desired record began on Monday morning when the weaver resumed production. The record of time worked was kept during a period of continuous weaving, generally from four to six days, and for some mills a longer period, and at the close of work on the last day the cloth in the loom was again marked with a colored chalk line. The percher or measurer was enabled by the marking of the cloth to record the exact yardage woven in the period.

To facilitate the keeping of a perfect record, and also for the purpose of ascertaining the character and quality of the material used and the conditions under which the fabric was produced, a card was attached to each loom, upon which the following data were entered:

1. Pay-roll number of weaver.
2. Loom number.
3. Number of looms run by weaver.
4. Sex of weaver. Male or female.
5. Single or double beam work.
6. Number of shuttles used.
7. Number of harness.
8. Speed of loom, picks per minute.
9. Number of picks per inch.
10. Width of goods woven, unfinished.
11. Weight of goods per yard (ounces).
12. Number of warp ends.
13. Ply, count or runs, and quality of warp.
14. Ply, count or runs, and quality of filling.
15. Style and piece number.
16. Trade name of goods.
17. Hours worked by weaver.
    First day.
    Second day.
    Third day.
    Fourth day.
    Fifth day.
    Sixth day.
18. Total yards woven.
19. Piece price per yard paid to weaver.

To this was added from the mill records facts as to where the looms were made (whether of American or foreign manufacture), with year of make, and style.

It will be seen that every factor entering into the manufacture of the cloth was included in the data obtained by the board. It should be borne in mind that the weaving time only of the weaver when engaged in the production of the cloth was included in the record. The idle time of the weaver when not working on loom production, such as waiting for new warp, for filling, or for breakdown of the loom, was rigorously excluded.

If the warp in the loom should be woven out at any time during the period in which the record was being kept, the record for that loom was brought to an end and the time it ended was noted, together with the yardage produced. If any doubt existed as to its accuracy, the loom record was stricken out. In this way an accurate basis was secured for determining the efficiency or inefficiency of each weaver.

It will be noted that the card attached to each loom called for the exact speed of the loom, expressed in picks per minute, and also the number of picks per inch. A pick is "a single strand of weft reaching once across a piece" of cloth. The bobbin within the shuttle which is propelled across the cloth contains several hundred yards of weft or filling yarn. The loom is so adjusted that it will propel the shuttle a certain number of times automatically, per minute, weaving a single pick or strand each time.

The loom is also adjusted so that it will weave a certain number of picks or strands automatically in every inch of cloth woven.

When the bobbin in the shuttle is empty the loom has to be stopped and a full bobbin inserted in place of the empty one. An efficient weaver watching the loom closely will have a full bobbin in hand ready to insert when the last pick is thrown across from the empty one and will stop the loom but a few moments of time, to quickly make the exchange.

In exceptional cases there are weavers who make the exchange of empty and full bobbins without stopping the loom, but such instances are rare and the operation is dangerous, as it may result in serious accident to loom, material, and weaver. Such weavers, however, obtain the maximum production of the loom, or nearly 100 per cent.

The weaver has to stop the loom to tie broken warp ends of yarn. Imperfections in carding and spinning often make lumps in the warp yarn, which in most cases break in weaving and have to be tied.

Worsted weavers in general have fewer stops than woolen weavers, owing to finer yarn. In one establishment manufacturing worsted dress goods and using cotton warp a record was kept which showed that in several instances looms were run continuously for 10 hours without a single break of warp ends or stoppage of the looms on that account.

Stops to change bobbins and to tie broken warp ends are the principal causes preventing continuous operation and production of looms.

For 11,080 looms individual records of weavers' efficiency were secured, of which the following is an example from one of the records:

203 yards of cloth woven in 90 hours and 30 minutes (weaver's actual working time on loom).
105 picks per minute (speed of loom).
65 picks per inch.

From this data the following is derived:

Actual time loom was in motion and producing, 75 hours 24 minutes.
Actual time lost in stoppages, 15 hours 6 minutes.
Per cent of total time loom was producing, 83.3.
Per cent of total time lost in stoppages, 16.7.
Yards woven per hour of total working time of weaver, 2.24.
Yards woven per hour of actual producing time, 2.69.

The method of deriving the productive and stoppage time is as follows:

```
                            65 picks per inch.
                            36 inches per yard.
                         ______
                         2,340 picks per yard.
                           203 yards.
                         ______
Picks per minute,   105)475,020 picks in 203 yards.
                         ______
                         4,524 minutes, or 75 hours and 24 minutes.
```

90 hours and 30 minutes, total time of weaver.
75 hours and 24 minutes, actual loom time.
15 hours and 6 minutes, time lost.

The automatic action of the loom made it possible to record the time of the movement of a single pick between stoppages.

The following table for woolen and worsted goods establishments shows the proportion of the looms operated by the weavers which attained specified productive efficiency, together with the relative efficiency of the weavers employed in each establishment and average picks per minute, picks per inch, average yards woven per loom per hour of total weaving time of weavers, and of actual producing time in each mill:

PRODUCTIVE EFFICIENCY IN WEAVING IN WOOLEN AND WORSTED MILLS IN THE UNITED STATES.

TABLE 72.—*Average efficiency, average speed of looms, average number of picks per inch in fabrics, average number of yards woven per hour, and percentage of total looms attaining specified grades of productive efficiency, by establishments.*

WOOLEN GOODS.

Establishments.	Average efficiency of mill (per cent).	Average speed of looms, picks per minute.	Average picks per inch in fabrics.	Average yards woven per loom per hour—		Per cent of total looms in each mill on which the weaver's productive efficiency was—													
				Of total weaving time of weavers.	Of actual producing time.	90 per cent or over.	85 per cent but less than 90 per cent.	80 per cent but less than 85 per cent.	75 per cent but less than 80 per cent.	70 per cent but less than 75 per cent.	65 per cent but less than 70 per cent.	60 per cent but less than 65 per cent.	55 per cent but less than 60 per cent.	50 per cent but less than 55 per cent.	45 per cent but less than 50 per cent.	40 per cent but less than 45 per cent.	35 per cent but less than 40 per cent.	30 per cent but less than 35 per cent.	Less than 30 per cent.
No. 1	59.04	98.37	35.45	2.86	4.85	......	0.56	1.12	5.59	8.38	16.76	16.76	13.96	13.96	12.85	7.26	1.68	1.12	......
No. 2	55.09	93.99	26.25	3.28	5.95	......	1.27	1.27	5.06	12.66	10.12	12.66	12.66	15.19	12.66	8.86	6.32	1.27	......
No. 3	68.32	92.55	32.56	3.27	4.79	......	9.09	10.39	14.29	12.99	14.29	14.29	5.19	5.19	7.79	3.89	2.60	......	......
No. 4	73.65	91.77	30.00	3.76	5.11	4.65	11.63	16.28	9.30	25.58	11.63	4.65	9.30	6.98	......	......	......	......	......
No. 5	74.54	96.71	33.91	3.65	4.90	3.79	10.61	15.91	21.21	15.91	13.63	10.61	4.54	1.51	0.76	......	0.76	......	0.76
No. 6	52.63	92.42	25.09	3.20	6.08	0.32	......	1.26	0.63	3.15	5.05	12.30	12.62	16.40	18.61	15.46	8.20	3.79	2.21
No. 7	74.44	92.22	59.78	2.06	2.77	3.70	11.11	18.52	25.93	14.81	3.70	7.41	7.41	7.41	......	......	......	......	......
No. 8	74.63	101.47	51.18	2.45	3.29	......	13.64	13.64	18.18	18.18	13.64	9.09	9.09	4.54	......	......	......	......	......
No. 9	68.43	95.77	23.30	4.86	7.11	1.45	4.35	10.14	15.94	11.59	23.19	7.25	11.59	5.80	5.80	1.45	......	1.45	......
No. 10	69.41	98.64	34.62	3.25	4.84	1.00	8.00	9.00	18.00	11.00	15.00	9.00	14.00	6.00	3.00	2.00	3.00	1.00	......
No. 11	66.42	89.33	55.60	1.86	2.80	......	6.67	6.67	13.33	6.67	26.66	6.67	13.33	13.33	......	6.67	......	......	......
No. 12	69.73	97.04	34.68	3.54	5.07	5.41	4.05	6.76	21.62	14.87	20.27	14.87	2.70	4.05	1.35	1.35	2.70	......	......
No. 13	78.80	98.12	50.68	2.69	3.41	8.00	14.00	22.00	30.00	16.00	2.00	4.00	2.00	......	2.00	......	......	......	......
No. 14	73.85	95.39	42.05	2.85	3.85	2.50	10.00	15.00	22.50	20.00	10.00	15.00	2.50	......	......	2.50	......	......	......
No. 15	62.00	96.42	39.32	2.48	3.99	......	5.26	......	5.26	7.90	21.05	13.16	26.32	7.90	5.26	5.26	2.63	......	......
No. 16	76.00	95.41	47.04	2.53	3.33	4.35	17.39	17.39	26.09	13.05	4.35	2.17	6.52	4.35	2.17	......	2.17	......	......
No. 17	75.80	87.62	68.79	1.60	2.12	11.86	20.34	13.56	13.56	10.17	6.78	5.08	11.86	1.70	......	1.70	......	3.39	......
No. 18	59.14	96.25	24.22	4.74	8.02	2.22	6.67	4.45	3.33	11.11	3.33	13.33	22.22	14.44	6.67	6.67	1.11	......	4.45
No. 19	65.26	93.47	30.78	3.25	4.98	2.14	2.86	12.14	8.58	17.14	17.14	11.43	12.14	9.29	0.71	2.86	1.43	0.71	1.43
No. 20	58.98	94.65	27.73	3.45	5.84	3.85	......	3.85	7.69	3.85	13.46	15.38	13.46	11.53	3.85	3.85	3.85	5.77	9.61
No. 21	60.89	104.95	26.04	4.56	7.48	......	2.94	1.96	1.96	11.77	12.75	20.59	26.47	10.78	6.86	0.98	2.94	......	......

PRODUCTIVE EFFICIENCY IN WEAVING IN WOOLEN AND WORSTED MILLS IN THE UNITED STATES—continued.

TABLE 72.—*Average efficiency, average speed of looms, average number of picks per inch in fabrics, average number of yards woven per hour, and percentage of total looms attaining specified grades of productive efficiency, by establishments*—Continued.

WORSTED GOODS.

Establishments.	Average efficiency of mill (per cent)	Average speed of looms, picks per minute.	Average picks per inch in fabrics.	Average yards woven per loom per hour—		Per cent of total looms in each mill on which the weaver's productive efficiency was—													
				Of total weaving time of weavers.	Of actual producing time.	90 per cent or over.	85 per cent but less than 90 per cent.	80 per cent but less than 85 per cent.	75 per cent but less than 80 per cent.	70 per cent but less than 75 per cent.	65 per cent but less than 70 per cent.	60 per cent but less than 65 per cent.	55 per cent but less than 60 per cent.	50 per cent but less than 55 per cent.	45 per cent but less than 50 per cent.	40 per cent but less than 45 per cent.	35 per cent but less than 40 per cent.	30 per cent but less than 35 per cent.	Less than 30 per cent.
No. 1	60.92	107.21	57.93	1.85	3.03	0.24	1.43	4.30	8.83	7.88	12.41	18.85	17.18	12.17	8.59	4.06	1.67	1.91	0.48
No. 2	79.79	126.00	55.30	3.05	3.83	4.36	17.94	32.49	25.34	13.21	4.36	1.82	.24	.12	.12	......	......	......	......
No. 3	63.92	157.48	58.83	2.95	4.61	......	.66	2.30	5.26	18.42	19.41	24.34	14.14	8.22	3.95	1.32	.66	1.32	......
No. 4	83.10	120.16	62.79	2.90	3.49	21.87	33.53	29.15	9.04	3.21	1.46	.58	.58	.29	......	......	.29	......	......
No. 5	69.06	104.47	56.56	2.18	3.16	1.67	1.67	9.58	17.91	16.25	20.83	11.25	5.83	7.50	4.17	1.25	.42	.42	1.25
No. 6	80.40	104.17	55.48	2.93	3.65	18.18	18.18	16.67	13.63	15.15	6.06	9.09	1.52	1.52	......	......	......	......	......
No. 7	76.50	109.24	62.43	2.23	2.95	1.15	4.60	25.29	31.03	13.79	10.34	9.20	4.60	......	......	......	......	......	......
No. 8	87.66	92.38	69.00	2.03	2.32	42.86	23.81	14.29	7.14	4.76	4.76	2.38	......	......	......	......	......	......	......
No. 9	64.67	108.03	48.69	2.44	3.78	6.25	......	6.25	6.25	15.63	25.00	9.37	6.25	6.25	15.63	......	3.12	......	......
No. 10	74.18	99.50	59.38	2.06	2.78	3.39	12.71	21.19	21.19	11.02	7.63	7.63	6.78	1.69	1.69	......	2.54	.85	1.69
No. 11	66.58	125.81	52.39	2.77	4.18	......	1.45	5.80	13.04	15.94	15.94	17.39	10.15	11.59	4.35	1.45	......	2.90	......
No. 12	72.90	116.94	61.64	2.30	3.15	2.76	7.59	11.03	21.03	21.38	12.41	11.38	6.90	2.76	1.03	.69	.69	......	.35
No. 13	70.85	120.36	54.44	2.53	3.57	1.60	3.45	5.91	12.19	15.64	15.76	14.78	12.07	8.00	6.16	2.59	1.11	.49	.25
No. 14	62.00	96.87	64.38	2.37	2.98	8.00	8.00	32.00	24.00	8.00	12.00	8.00	......	......	......	......	......	......	......
No. 15	76.40	141.07	63.29	2.78	3.64	4.66	12.25	20.04	19.46	16.37	11.88	7.26	4.33	1.98	.74	.33	.41	.17	.12
No. 16	68.46	132.75	62.65	2.56	3.73	1.22	5.07	10.84	16.96	12.06	14.51	10.67	9.79	6.82	4.72	1.75	2.27	.87	2.45
No. 17	67.77	116.46	57.51	2.77	4.08	2.85	6.26	11.75	14.90	15.08	14.18	11.03	8.26	6.17	3.49	2.55	1.87	.68	.98
No. 18	71.67	99.32	67.35	1.82	2.53	6.94	11.12	9.72	8.33	20.83	13.89	9.72	9.72	4.17	4.17	......	1.39	......	......
No. 19	52.28	99.29	50.00	1.73	3.32	......	......	......	......	14.29	14.29	......	......	14.29	28.57	28.57	......	......	......
No. 20	59.01	115.09	43.42	2.71	4.59	2.48	5.79	7.44	9.09	18.18	16.53	10.74	11.57	9.92	.83	4.13	1.65	1.65	......
No. 21	63.35	114.10	59.42	2.09	3.19	......	......	1.45	7.25	18.84	23.19	13.04	13.04	15.94	4.35	2.90	......	......	......
No. 22	84.98	107.91	52.48	2.98	3.51	25.81	32.26	16.13	6.45	6.45	12 90	......	......	......	......	......	......	......	......

In the data shown in the above table for 21 woolen and 22 worsted goods establishments is included the weaving of 1,912,681 yards of cloth by 4,574 weavers on 11,080 looms, or an average of 172.6 yards per loom and 418 yards per weaver. In the total looms 9,329 were used for weaving worsted and 1,751 for weaving woolen fabrics.

The method used in the above table of computing the percentage of productive efficiency of each weaver and loom and of all weavers and of all looms in each establishment puts all mills on a comparable basis, despite the fact that some mills had faster looms than others or were weaving fabrics having fewer picks per inch than the fabrics of other mills. In the upper portion of the table the data are presented for woolen mills and in the lower for worsted mills.

The table shows that the average efficiency of worsted mills is higher than that of woolen mills. This is largely owing to the fact that worsted goods in general are woven with stronger warp and stronger and finer filling yarns, with a greater quantity of weft wound on the bobbins, and worsted looms for these reasons need not be stopped so often as woolen looms in the process of weaving.

For worsted looms an average efficiency of at least 80 per cent is sought by many manufacturers and for woolen looms at least 70 per cent.

These percentages represent high standards of weave-room efficiency, which require in addition to skilled weavers and good loom equipment careful management of the work and care in making the yarn of good quality and preparing it for the loom. But the principal factor is the weaver. If the weavers are skillful and attentive to their work they can under normal conditions keep their looms in operation at least 80 per cent of the time they are weaving worsted cloths and at least 70 per cent of the time they are weaving woolens.

The extent, therefore, to which the average percentage of a mill falls below 80 on worsted and 70 on woolens, is the measure of its efficiency. The fact that some worsted mills and woolen mills attained these standards proves that they are not too high.

The weave room has been called the "heart of the mill," and efficiency in weaving is therefore a good index of the efficiency of a mill as a whole. This is borne out by the fact that in practically every case the mills having a high average of weaving efficiency were efficient also in the scouring, carding, combing, drawing, and spinning departments, the low labor cost per pound attesting their efficiency in those branches. The table shows that the highest average efficiency of any of the worsted mills was 87.66 per cent. Three other mills had an average efficiency of over 80 per cent, seven were in the groups of 70 but less than 80 per cent, three being over 75 per cent. Nine were in the group of 60 but less than 70 per cent. One was 59.01 per cent, while the lowest was 52.28 per cent.

In the establishment having an average of 87.66 per cent, a productive efficiency of 90 per cent or over was obtained on 42.86 per cent of its total looms, while only 2.38 per cent of the looms fell below 65 per cent.

In the worsted mill having but 52.28 per cent average efficiency, over 57 per cent of its looms fell below 50 per cent efficiency. That the percentage of efficiency does not vary with the average speed of the looms is well illustrated by the fact that the worsted mill showing the highest efficiency operated its looms at an average speed of only

92.38 picks per minute, which is rather low for worsted looms. This statement might be interpreted as indicating that better results could be secured by slow looms, were it not that the other mills which attained an efficiency of over 80 per cent had fast looms, establishment No. 4 having an average speed of over 120 picks per minute, No. 22 average speed over 107 picks per minute, and No. 6, with a speed of over 104 picks per minute.

The table shows that in the woolen mills the highest average efficiency was obtained by mill No. 13, with 78.80 per cent, or 3.8 per cent above the standard. Two others also obtained averages above 75 per cent. Eight of the 21 woolen mills had an average efficiency of more than 70 but less than 80 per cent, 8 other mills were in the group of 60 but less than 70 per cent, while 5 were in the lowest group of 50 but less than 60 per cent.

The average number of yards woven per loom per hour of total weaving time of weavers and of actual producing time is shown in table 72 for each establishment and indicates in another way the productive efficiency of loom and weaver. The yards per hour per loom of total weaving time are based upon the time the weaver was at work at the loom, while the yards per loom per hour of actual producing time are based upon the time the loom was actually in motion.

If it is desired to ascertain how many yards per hour of woolen or worsted goods having specified average number of picks per inch could be woven on looms of certain speeds (indicated by picks per minute), such information may be obtained in columns 2, 3, 4, and 5 of the above table.

It should be remembered that the most efficient mills do not necessarily show the greatest yardage per hour. In fact, the most efficient worsted mill shown in the above table produced the smallest yardage per hour of actual producing time—2.32 yards. This is a result of the fact that this mill was weaving fabrics with a large number of threads or picks per inch on slow worsted looms.

The following tabular statement shows for all establishments the number and per cent of woolen and worsted looms attaining specified grades of productive efficiency:

Grade of productive efficiency.	Worsted looms.		Woolen looms.	
	Number.	Per cent distribution.	Number.	Per cent distribution.
Total looms	9,329	100.0	1,751	100.0
Looms attaining an efficiency of—				
90 per cent and over	381	4.1	36	2.0
80 per cent but less than 90 per cent	2,291	24.7	226	12.9
70 per cent but less than 80 per cent	2,886	30.9	379	21.6
50 per cent but less than 70 per cent	3,185	34.1	795	45.4
30 per cent but less than 50 per cent	536	5.7	296	17.0
Less than 30 per cent	50	0.5	19	1.1

The table shows that, considering the individual efficiency of the weavers apart from the establishments they worked in, it was found that of a total of 9,329 worsted looms, the weavers operating 381 looms, or 4.1 per cent, attained a productive efficiency of 90 per cent and over. On 2,291 looms, or 24.7 per cent, they attained an efficiency of 80 per cent but less than 90.

On 2,886 looms, or 30.9 per cent of the total, they attained an efficiency of 70 per cent but less than 80.

On 3,185 looms, or 34.1 per cent of the total, they attained an efficiency of 50 per cent but less than 70.

On 536 looms, or 5.7 per cent of the total, they attained an efficiency of 30 per cent but less than 50.

On 50 looms an efficiency of less than 30 per cent was attained.

From this it appears that on 6,657 looms, or 71.2 per cent of the total worsted looms, the weavers fell below 80 per cent productive efficiency, the standard of efficiency the manufacturers seek to attain.

The standard of satisfactory efficiency in woolen mills is 70 per cent of the theoretical 100.

In the woolen mills the individual efficiency of the weavers was as follows:

On 36 looms, or 2 per cent of the total number, a productive efficiency of 90 per cent and over was attained by the weavers; on 226 looms, or 12.9 per cent, an efficiency of 80 per cent but less than 90; on 379 looms, or 21.6 per cent, an efficiency of 70 but less than 80 per cent; on 795 looms, or 45.4 per cent, an efficiency of 50 per cent but less than 70; on 296 looms, or 17 per cent, an efficiency of 30 per cent but less than 50.

On 19 looms an efficiency of less than 30 per cent was attained.

The foregoing shows that on 63.5 per cent of the woolen looms the weavers fell below the desired standard of efficiency, and that only on 36.5 per cent of the looms was the standard attained.

In the following tables the relative efficiency of male and female weavers is shown, by establishments:

PRODUCTIVE EFFICIENCY IN WEAVING IN WORSTED MILLS IN THE UNITED STATES FOR MALES AND FEMALES.

TABLE 73.—*Average efficiency, average speed of looms, average number of picks per inch in fabrics, average number of yards woven per hour, and percentage of total looms attaining specified grades of productive efficiency, by establishments.*

Establishment and sex.	Average efficiency of mill (per cent).	Average speed of looms (picks per minute).	Average picks per inch in fabrics.	Average yards woven per loom per hour—		Per cent of total looms in each mill on which the weaver's productive efficiency was—				
				Of total weaving time of weavers.	Of actual producing time.	90 per cent or over.	70 per cent but less than 90 per cent.	50 per cent but less than 70 per cent.	30 per cent but less than 50 per cent.	Less than 30 per cent.
Establishment No. 1:										
Males	64.22	97.57	63.53	1.57	2.44	0.56	36.66	52.22	10.56	....
Females	59.17	112.50	54.49	2.00	3.37	....	11.71	66.95	20.50	0.84
Total	60.92	107.21	57.93	1.85	3.03	0.24	22.43	60.62	16.23	0.48
Establishment No. 2:										
Males	79.67	126.00	55.42	3.04	3.82	4.47	88.53	7.00	....	....
Females	80.36	126.00	54.78	3.11	3.87	3.90	90.91	4.54	0.65	....
Total	79.79	126.00	55.30	3.05	3.83	4.36	88.97	6.55	0.12	....

PRODUCTIVE EFFICIENCY IN WEAVING IN WORSTED MILLS IN THE UNITED STATES FOR MALES AND FEMALES—continued.

TABLE 73.—*Average efficiency, average speed of looms, average number of picks per inch in fabrics, average number of yards woven per hour, and percentage of total looms attaining specified grades of productive efficiency, by establishments*—Continued.

Establishment and sex.	Average efficiency of mill (per cent).	Average speed of looms (picks per minute).	Average picks per inch in fabrics.	Average yards woven per loom per hour—		Per cent of total looms in each mill on which the weaver's productive efficiency was—				
				Of total weaving time of weavers.	Of actual producing time.	90 per cent or over.	70 per cent but less than 90 per cent.	50 per cent but less than 70 per cent.	30 per cent but less than 50 per cent.	Less than 30 per cent.
Establishment No. 3:										
Males	65.01	154.81	58.84	2.92	4.49	....	28.42	65.26	6.32	....
Females	63.43	158.67	58.83	2.96	4.67	....	25.84	66.51	7.65	....
Total	63.92	157.48	58.83	2.95	4.61	....	26.64	66.12	7.24	....
Establishment No. 4:								3.06		
Males	83.06	120.01	62.77	2.91	3.50	22.02	72.17	2.75		....
Females	83.92	123.50	63.29	2.73	3.25	18.75	75.00	6.25	....	....
Total	83.10	120.16	62.79	2.90	3.49	21.87	74.93	2.91	0.29	....
Establishment No. 5:										
Males	69.52	104.38	56.68	2.19	3.16	1.46	48.05	42.72	6.31	1.46
Females	66.13	105.06	55.77	2.11	3.01	2.94	29.41	61.77	5.88	....
Total	69.06	104.47	56.56	2.18	3.16	1.67	45.42	45.42	6.25	1.25
Establishment No. 6:										
Males	80.39	104.26	55.59	2.93	3.65	5.00	80.00	15.00	....	....
Establishment No. 7:										
Males	76.50	109.24	62.43	2.23	2.95	1.15	74.71	24.14	....	....
Establishment No. 8:										
Males	87.66	92.38	69.00	2.03	2.32	43.90	51.22	4.88	....	....
Establishment No. 9:										
Males	64.00	108.40	48.40	2.46	3.84	5.00	30.00	45.00	20.00	....
Females	65.69	107.42	49.17	2.42	3.68	8.33	25.00	50.00	16.67	....
Total	64.67	108.03	48.69	2.44	3.78	6.25	28.13	46.87	18.75	....
Establishment No. 10:										
Males	74.78	101.45	59.46	2.11	2.82	3.06	66.33	24.49	5.10	1.02
Females	71.26	89.68	59.95	1.84	2.58	5.00	65.00	20.00	5.00	5.00
Total	74.18	99.50	59.38	2.06	2.78	3.39	66.11	23.73	5.08	1.69
Establishment No. 11:										
Males	65.40	124.29	49.57	2.97	4.54	....	33.33	55.56	11.11	....
Females	66.58	125.81	52.39	2.73	4.10	....	36.67	55.00	8.33	....
Total	66.38	125.53	51.87	2.77	4.18	....	36.23	55.07	8.70	....
Establishment No. 12:										
Males	73.67	116.00	62.01	2.30	3.13	2.92	64.92	29.24	2.92	....
Females	71.88	118.22	61.13	2.29	3.19	2.52	55.46	39.50	1.68	0.84
Total	72.90	116.94	61.64	2.30	3.15	2.76	61.03	33.45	2.41	0.35
Establishment No. 13:										
Males	68.63	121.43	54.01	2.62	3.81	3.30	43.95	42.86	9.89	....
Females	71.12	120.23	54.49	2.52	3.54	1.39	36.34	51.59	10.40	0.28
Total	70.85	120.36	54.44	2.53	3.57	1.60	37.19	50.62	10.34	0.25

PRODUCTIVE EFFICIENCY IN WEAVING IN WORSTED MILLS IN THE UNITED STATES FOR MALES AND FEMALES—continued.

Table 73.—*Average efficiency, average speed of looms, average number of picks per inch in fabrics, average number of yards woven per hour, and percentage of total looms attaining specified grades of productive efficiency, by establishments*—Continued.

Establishment and sex.	Average efficiency of mill (per cent).	Average speed of looms (picks per minute).	Average picks per inch in fabrics.	Average yards woven per loom per hour—		Per cent of total looms in each mill on which the weaver's productive efficiency was—				
				Of total weaving time of weavers.	Of actual producing time.	90 per cent or over.	70 per cent but less than 90 per cent.	50 per cent but less than 70 per cent.	30 per cent but less than 50 per cent.	Less than 30 per cent.
Establishment No. 14:										
Males	78.91	97.79	58.45	2.35	2.98	9.52	66.67	23.81	....	....
Females	82.11	92.50	51.75	2.44	2.97	....	100.00	....	....	....
Total	79.50	96.87	57.33	2.37	2.98	8.00	72.00	20.00	....	....
Establishment No. 15:										
Males	76.42	134.84	58.95	2.80	3.67	6.78	63.41	27.91	1.76	0.14
Females	76.39	143.75	65.17	2.78	3.63	3.74	70.18	24.36	1.60	0.12
Total	76.40	141.07	63.29	2.78	3.64	4.66	68.12	25.45	1.65	0.12
Establishment No. 16:										
Males	58.60	124.52	60.59	2.06	3.52	0.88	29.82	41.23	21.05	7.02
Females	70.75	134.49	63.10	2.67	3.77	1.31	48.69	41.92	6.77	1.31
Total	68.46	132.75	62.65	2.56	3.73	1.22	44.93	41.78	9.62	2.45
Establishment No. 17:										
Males	67.71	117.31	56.67	2.87	4.24	0.46	46.08	48.39	4.61	0.46
Females	68.27	105.39	65.76	1.84	2.70	3.10	48.12	38.74	9.01	1.03
Total	67.77	116.46	57.51	2.77	4.08	2.85	47.94	39.63	8.60	0.98
Establishment No. 18:										
Males	74.74	97.20	68.15	1.82	2.44	10.25	48.72	35.90	5.13	....
Females	68.45	101.67	66.38	1.81	2.64	3.03	51.52	39.39	6.06	....
Total	71.67	99.32	67.35	1.82	2.53	6.94	50.00	37.50	5.56	....
Establishment No. 19:										
Males	44.63	100.00	50.00	1.48	3.32	....	....	....	100.00	....
Females	60.25	98.75	50.00	2.00	3.31	....	25.00	50.00	25.00	....
Total	52.28	99.29	50.00	1.73	3.32	....	14.29	28.57	57.14	....
Establishment No. 20:										
Males	70.97	108.12	41.06	3.33	4.70	....	54.55	33.33	12.12	....
Females	54.90	117.95	44.24	2.50	4.09	3.41	35.23	54.54	6.82	....
Total	59.01	115.09	43.42	2.71	4.59	2.48	40.50	48.76	8.26	....
Establishment No. 21:										
Males	64.05	110.53	60.09	1.97	3.07	....	30.23	65.12	4.65	....
Females	62.17	120.00	58.31	2.12	3.41	....	23.08	65.38	11.54	....
Total	63.35	114.10	59.42	2.02	3.19	....	27.54	65.22	7.24	....

PRODUCTIVE EFFICIENCY IN WEAVING IN WOOLEN MILLS IN THE UNITED STATES FOR MALES AND FEMALES.

TABLE 74.—*Average efficiency, average speed of looms, average number of picks per inch in fabrics, average number of yards woven per hour, and percentage of total looms attaining specified grades of productive efficiency, by establishments.*

Establishment and sex.	Average efficiency of mill (per cent).	Average speed of looms (picks per minute).	Average picks per inch in fabrics.	Average yards woven per loom per hour— Of total weaving time of weavers.	Average yards woven per loom per hour— Of actual producing time.	Per cent of total looms in each mill on which the weaver's productive efficiency was— 90 per cent or over.	70 per cent but less than 90 per cent.	50 per cent but less than 70 per cent.	30 per cent but less than 50 per cent.	Less than 30 per cent.
Establishment No. 1:										
Males	60.56	98.59	36 32	2.88	4.76	....	19.23	60.58	20.19	....
Females	56.97	98.06	34.28	2.83	4.97	....	10.66	62.67	26.67	....
Total	59.04	98.37	35.45	2.86	4.85	....	15.64	61.45	22.91	....
Establishment No. 2:										
Males	54.55	93.98	26.16	3.24	5.95	....	20.63	47.62	31.75	....
Females	57.78	94.00	26.63	3.43	5.94	....	18.75	62.50	18.75	....
Total	55.09	93.99	26.25	3.28	5.95	....	20.26	50.63	29.11	....
Establishment No. 3:										
Males	68.06	92.54	33.77	3.17	4.66	....	45.83	37.50	16.67	....
Females	68.75	92.55	30.54	3.44	5.00	....	48.28	41.38	10.34	....
Total	68.32	92.55	32.56	3.27	4.79	....	46.75	38.96	14.29	....
Establishment No. 4:										
Males	74.52	91.63	30.00	3.89	5.11	7.41	59.26	33.33	....	....
Females	72.15	92.00	30.00	3.69	5.11	....	68.75	31.25	....	....
Total	73.65	91.77	30.00	3.76	5.11	4.65	62.79	32.56	....	....
Establishment No. 5:										
Males	75.10	96.85	34.31	3.71	4.94	2.35	64.71	31.76	....	1.18
Females	73.54	96.45	33.19	3.56	4.84	6.38	61.70	27.66	4.26	....
Total	74.54	96.71	33.91	3.65	4.90	3.79	63.64	30.30	1.51	0.76
Establishment No. 6:										
Males	53.96	91.32	25.97	3.06	5.68	0.47	6.61	45.28	45.28	2.36
Females	49.58	94.99	23.13	3.51	6.09	....	1.90	48.58	47.62	1.90
Total	52.63	92.42	25.09	3.20	6.08	0.32	5.04	46.37	46.06	2.21
Establishment No. 7:										
Males	74.44	92.22	59.78	2.06	2.77	3.70	70.37	25.93	....	....
Establishment No. 8:										
Males	71.49	103.56	52.67	2.35	3.29	....	44.44	55.56	....	....
Females	76.59	100.00	50.16	2.52	3.29	....	76.92	23.08	....	....
Total	74.63	101.47	51.18	2.45	3.29	....	63.64	36.36	....	....
Establishment No. 9:										
Males	69.35	95.80	23.39	4.97	7.16	....	44.90	48.98	6.12	....
Females	65.47	95.71	23.10	4.54	6.94	5.00	35.00	45.00	15.00	....
Total	68.43	95.77	23.30	4.86	7.11	1.45	42.02	47.83	8.70	....
Establishment No. 10:										
Males	64.00	100.47	36.97	3.05	4.77	....	48.89	37.78	13.33	....
Females	69.41	98.64	34.62	3.39	4.89	1.82	43.64	49.09	5.45	....
Total	67.12	99.48	35.68	3.25	4.84	1.00	46.00	44.00	9.00	....
Establishment No. 11:										
Males	65.43	89.50	55.00	1.84	2.82	....	20.00	80.00	....	....
Females	68.07	89.00	56.80	1.89	2.77	....	60.00	20.00	20.00	....
Total	66.42	89.33	55.60	1.86	2.80	....	33.33	60.00	6.67	....

PRODUCTIVE EFFICIENCY IN WEAVING IN WOOLEN MILLS IN THE UNITED STATES FOR MALES AND FEMALES—continued.

TABLE 74.—*Average efficiency, average speed of looms, average number of picks per inch in fabrics, average number of yards woven per hour, and percentage of total looms attaining specified grades of productive efficiency, by establishments*—Continued.

Establishment and sex.	Average efficiency of mill (per cent).	Average speed of looms (picks per minute).	Average picks per inch in fabrics.	Average yards woven per loom per hour—		Per cent of total looms in each mill on which the weaver's productive efficiency was—				
				Of total weaving time of weavers.	Of actual producing time.	90 per cent or over.	70 per cent but less than 90 per cent.	50 per cent but less than 70 per cent.	30 per cent but less than 50 per cent.	Less than 30 per cent.
Establishment No. 12:										
Males	68.97	97.33	34.36	3.53	5.12	5.88	47.06	35.29	11.77	....
Females	70.31	96.77	34.95	3.54	5.04	5.00	47.50	47.50	....	....
Total	69.73	97.04	34.68	3.54	5.07	5.41	47.29	41.89	5.41	....
Establishment No. 13:										
Males	80.14	100.41	52.34	2.80	3.50	10.34	79.32	10.34	....	....
Females	77.02	94.80	48.38	2.53	3.29	4.76	85.72	4.76	4.76	....
Total	78.80	98.12	50.68	2.69	3.41	8.00	82.00	8.00	2.00	....
Establishment No. 14:										
Males	73.92	94.08	42.07	2.83	3.82	....	70.37	25.93	3.70	....
Females	73.68	97.92	42.00	2.89	3.92	7.69	61.54	30.77	....	....
Total	73.85	95.39	42.05	2.85	3.85	2.50	67.50	27.50	2.50	....
Establishment No. 15:										
Males	69.46	104.00	38.00	2.70	3.89	....	....	100.00	....	....
Females	61.26	95.77	39.43	2.45	4.00	....	20.00	65.71	14.29	....
Total	62.00	96.42	39.32	2.48	3.99	....	18.42	68.42	13.16	....
Establishment No. 16:										
Males	73.93	95.52	47.57	2.44	3.29	3.57	75.00	14.29	7.14	....
Females	79.17	95.25	46.22	2.69	3.39	5.56	72.22	22.22	....	....
Total	76.00	95.41	47.04	2.53	3.33	4.35	73.91	17.39	4.35	....
Establishment No. 17:										
Males	77.14	87.06	69.82	1.13	2.08	11.43	57.14	28.57	2.86	....
Females	73.84	88.45	67.33	1.60	2.16	12.50	58.34	20.83	8.33	....
Total	75.80	87.62	68.79	1.60	2.12	11.86	57.63	25.42	5.09	....
Establishment No. 18:										
Males	58.48	96.04	24.18	4.54	7.77	1.67	28.33	51.67	15.00	3.33
Females	60.42	96.61	24.33	5.12	8.48	3.33	20.00	56.67	13.33	6.67
Total	59.14	96.25	24.22	4.74	8.02	2.22	25.56	53.33	14.44	4.45
Establishment No. 19:										
Males	65.16	90.00	30.81	3.17	4.86	1.06	40.42	48.94	7.45	2.13
Females	65.43	93.89	30.73	3.42	5.22	4.35	41.31	52.17	2.17	....
Total	65.26	93.47	30.78	3.25	4.98	2.14	40.72	50.00	5.71	1.43
Establishment No. 20:										
Males	61.32	94.67	28.53	3.44	5.60	2.86	20.00	57.14	5.71	14.29
Females	54.18	94.62	26.12	3.47	6.39	5.88	5.88	47.06	41.18	....
Total	58.98	94.65	27.73	3.45	5.84	3.85	15.38	53.85	17.31	9.61
Establishment No. 21:										
Males	60.51	105.07	26.17	4.53	7.49	....	18.18	71.21	10.61	....
Females	61.61	104.72	25.78	4.60	7.46	....	19.44	69.45	11.11	....
Total	60.89	104.95	26.04	4.56	7.48	....	18.63	70.59	10.78	....

Table 73 throws light on the question of whether males or females are more skillful as worsted weavers.

On the whole it appears that female worsted weavers are fully as efficient as males. In three of the 21 worsted mills shown in table 73, only male weavers were employed, and in each mill the average efficiency was high.

In five establishments (Nos. 2, 4, 9, 11, and 17) the female weavers had a higher average efficiency than the males, but the margin of superiority was slight. In two establishments (Nos. 13 and 14) the margin in favor of the female weavers was larger, while in two others (Nos. 16 and 19) the superiority of the females was very marked. In other words, in 9 of the 18 mills for which a comparison can be made the females were more efficient. And in this connection, it may be noted that in mill No. 19, which was mentioned above as having the lowest average efficiency of any of the worsted mills, the female weavers had a fair efficiency but the inefficiency of the males—the greatest shown for that sex in any of the above mills—brought the average for the mill to a low point.

On the other hand, males were more efficient in establishments Nos. 1, 3, 5, 10, 12, 15, 18, 20, and 21, but in only one (No. 20) was their superiority marked.

Although female weavers show, on the whole, a higher average efficiency, they are not to be found in the highest group—90 per cent and over—in so large relative numbers as the males. On the other hand, they are found a little more often in the lowest group—less than 30 per cent.

In woolen mills, as in worsted mills, female weavers are fully as efficient as male weavers. A comparison of the relative efficiency of the sexes can be made for 20 of the 21 woolen mills shown in table 74.

In 10 establishments (Nos. 2, 3, 8, 10, 11, 12, 16, 18, 19, and 21) the averages shown for females are higher than those for males. In two establishments (Nos. 3 and 21) the margin of superiority is slight, and in no case is it marked.

In 10 establishments (Nos. 1, 4, 5, 6, 9, 13, 14, 15, 17, and 20) the male weavers were more efficient. In one case the margin in favor of the males was very little.

In the following tables a more detailed comparative study of the mill efficiency is possible by a presentation of efficiency data on specified woolen and worsted fabrics:

PRODUCTIVE EFFICIENCY IN THE WEAVING OF SPECIFIED WOOLEN FABRICS IN MILLS IN THE UNITED STATES.

TABLE 75.—*Average efficiency, average speed of looms, average picks per inch in fabrics, average number of yards woven per hour and percentage of total looms attaining specified grades of productive efficiency; by establishments.*

Establishment and fabric.	Average efficiency of all weavers on specified fabrics (per cent).	Average speed of looms (picks per minute).	Average picks per inch in fabrics.	Average yards woven per loom per hour—		Per cent of total looms on specified fabrics in each mill on which the weaver's productive efficiency was—				
				Of total weaving time of weaver.	Of actual producing time.	90 per cent and over.	70 per cent but less than 90.	50 per cent but less than 70.	30 per cent but less than 50.	Less than 30 per cent.
Plain cheviots:										
Establishment No. 1..	72.44	99.84	31.84	3.79	5.23	3.85	53.84	38.46	3.85	......
Establishment No. 2..	83.77	102.70	44.25	3.17	3.94	8.33	79.17	8.33	4.17	......
Establishment No. 3..	68.22	92.38	28.94	3.37	4.94	....	42.86	50.00	7.14	......
Establishment No. 4..	63.23	98.82	34.00	3.02	4.78	....	36.36	45.46	18.18	......
Establishment No. 5..	69.14	93.33	31.47	3.95	5.71	6.67	40.00	40.00	13.33	......
Establishment No. 6..	73.65	92.00	30.00	3.76	5.11	4.65	62.79	32.56	....	......
Fancy cheviots:										
Establishment No. 1..	71.23	95.79	24.10	4.84	6.79	....	48.27	44.83	6.90	......
Plain cassimeres:										
Establishment No. 1..	75.81	94.41	35.24	3.49	4.62	1.47	70.59	25.00	1.47	1.47
Establishment No. 2..	69.28	92.51	32.09	3.16	4.53	....	50.00	38.64	11.36	......
Establishment No. 3..	70.38	99.52	38.44	2.92	4.20	3.70	48.15	44.45	3.70	......
Establishment No. 4..	78.11	97.97	35.79	3.21	4.11	7.90	55.26	34.21	2.63	......
Establishment No. 5..	71.49	96.45	29.90	3.86	5.44	....	61.90	38.10	....	......
Fancy cassimeres:										
Establishment No. 1..	67.03	96.72	24.53	4.38	6.54	1.96	35.29	50.98	11.77	......
Establishment No. 2..	67.18	100.00	41.52	2.58	3.84	....	52.17	39.13	8.70	......
Establishment No. 3..	63.81	94.00	25.58	3.89	6.09	....	50.00	33.33	16.67	......
Establishment No. 4..	62.82	95.68	39.03	2.45	3.90	....	18.92	64.86	16.22	......
Establishment No. 5..	67.81	98.00	40.17	2.76	4.08	....	54.17	41.67	4.16	......
Establishment No. 6..	75.22	84.85	49.20	2.57	3.42	6.25	70.84	20.83	2.08	......
Plain overcoatings and cloakings:										
Establishment No. 1..	77.30	97.09	53.82	2.32	3.00	....	90.91	9.09	....	......
Establishment No. 2..	61.47	115.33	29.60	3.88	6.31	....	26.67	60.00	13.33	......
Establishment No. 3..	54.44	93.92	24.17	3.65	6.71	....	10.53	52.63	34.21	2.63
Establishment No. 4..	76.78	92.20	77.00	1.97	2.56	14.28	64.29	21.43	....	......
Establishment No. 5..	59.43	107.21	22.44	5.07	8.54	....	13.46	71.15	15.39	......
Establishment No. 6..	58.86	99.47	34.69	2.90	4.93	....	15.62	60.94	23.44	......
Establishment No. 7..	55.38	78.80	62.40	1.45	2.62	....	....	80.00	20.00	......
Fancy overcoatings and cloakings:										
Establishment No. 1..	52.33	93.13	22.63	3.73	7.13	0.37	4.51	43.61	48.50	3.01
Establishment No. 2..	53.33	95.12	21.05	4.41	8.27	2.38	11.91	59.52	19.05	7.14
Establishment No. 3..	64.69	108.00	22.00	5.27	8.14	....	40.00	60.00	....	......
Establishment No. 4..	60.84	93.38	42.50	2.24	3.68	....	18.75	56.25	25.00	......
Establishment No. 5..	50.66	93.98	26.40	3.13	6.17	....	13.11	52.46	34.43	......
Broadcloths:										
Establishment No. 1..	57.79	109.52	56.05	1.97	3.40	....	13.17	65.84	20.64	0.35
Establishment No. 2..	61.57	97.30	44.00	2.27	3.69	....	15.38	69.24	15.38	......
Plain woolens:										
Establishment No. 1..	59.64	95.00	14.00	6.71	11.26	....	33.33	50.00	16.67	......
Establishment No. 2..	64.10	98.89	30.00	3.60	5.62	....	16.67	75.00	8.33	......
Establishment No. 3..	69.49	96.80	42.60	2.79	4.01	....	66.67	11.11	22.22	......
Establishment No. 4..	58.93	97.03	32.03	2.88	4.89	....	10.81	63.51	25.68	......
Establishment No. 5..	65.29	97.67	20.17	5.63	8.62	....	25.00	50.00	25.00	......
Ladies' fancy dress goods:										
Establishment No. 1..	64.01	89.63	31.24	3.06	4.75	1.11	32.22	56.67	7.78	2.22
Establishment No. 2..	58.56	101.75	40.83	2.43	4.16	....	8.33	75.00	16.67	......
Establishment No. 3..	62.05	95.00	14.00	6.68	10.68	....	20.00	70.00	....	10.00
Carriage and auto cloths:										
Establishments Nos. 1 to 4..............	61.92	105.71	28.14	4.20	6.79	....	14.29	78.57	7.14	......
Uniform cloths:										
Establishment No. 1..	81.94	87.87	67.07	1.79	2.19	11.32	54.72	28.30	5.66	......
Establishment No. 2..	59.63	97.76	44.59	3.03	5.08	5.88	82.35	11.77	....	......
Establishment No. 3..	75.97	101.67	60.10	2.45	3.23	....	63.64	36.36	....	......

PRODUCTIVE EFFICIENCY IN THE WEAVING OF SPECIFIED WORSTED FABRICS IN MILLS IN THE UNITED STATES.

TABLE 76.—*Average efficiency, average speed of looms, average picks per inch in fabrics, average number of yards woven per hour, and percentage of total looms attaining specified grades of productive efficiency, by establishments.*

Establishment and fabric.	Average efficiency of all weavers on specified fabrics (per cent).	Average speed of looms (picks per minute).	Average picks per inch in fabrics.	Average yards woven per loom per hour—		Per cent of total looms on specified fabric in each mill on which the weaver's productive efficiency was—				
				Of total weaving time of weavers.	Of actual producing time.	90 per cent and over.	70 per cent but less than 90 per cent.	50 per cent but less than 70 per cent.	30 per cent but less than 50 per cent.	Less than 30 per cent.
Fancy worsteds:										
Establishment No. 1..	68.08	103.50	66.75	1.76	2.59	2.60	41.00	48.70	7.70	......
Establishment No. 2..	68.49	107.41	55.96	2.22	3.24	....	49.00	45.10	5.90	......
Establishment No. 3..	70.51	112.00	61.42	2.12	3.01	....	58.30	41.70	....	......
Establishment No. 4..	72.55	108.07	56.76	2.19	3.16	....	37.90	62.10	....	......
Establishment No. 5..	67.00	122.19	65.08	2.51	3.74	1.00	36.70	54.10	8.20	......
Establishment No. 6..	63.35	113.76	59.42	2.03	3.20	....	27.50	65.20	7.30	......
Establishment No. 7..	65.85	129.11	52.18	2.76	4.19	....	37.50	57.10	5.40	......
Establishment No. 8..	72.28	104.35	54.00	2.38	3.18	9.10	50.00	31.80	9.10	......
Establishment No. 9..	76.48	100.08	119.54	3.15	4.13	....	76.90	23.10	....	......
Establishment No. 10.	82.00	92.33	75.11	1.76	2.15	16.70	72.20	11.10	....	......
Establishment No. 11.	69.16	112.25	48.05	2.72	3.92	....	48.70	48.70	2.60	......
Plain serge:										
Establishment No. 1..	84.15	120.00	46.00	3.04	4.47	....	45.20	52.40	2.40	......
Establishment No. 2..	84.92	124.10	60.85	2.83	3.33	23.00	72.20	4.30	0.50	......
Establishment No. 3..	65.73	121.25	58.95	2.27	3.46	....	40.50	52.40	7.10	......
Establishment No. 4..	89.15	120.00	52.50	3.04	3.41	37.50	62.50	....	....	......
Establishment No. 5..	66.65	124.67	55.14	2.55	3.82	3.00	38.60	49.80	8.60	......
Establishment No. 6..	75.85	116.72	61.11	2.33	3.08	3.20	62.80	32.00	2.00	......
Establishment No. 7..	80.57	96.94	53.18	2.46	3.06	11.80	64.70	23.50	....	......
Establishment No. 8..	77.14	121.60	58.03	2.79	3.61	22.60	60.40	17.00	....	......
Establishment No. 9..	76.39	93.39	63.45	1.93	2.53	1.90	73.60	22.60	1.90	......
Establishment No. 10.	81.67	125.53	45.81	3.85	4.71	6.50	93.50	....	....	......
Fancy serge:										
Establishment No. 1..	67.77	120.85	52.43	2.58	3.81	0.90	45.40	41.70	12.00	......
Establishment No. 2..	86.29	118.16	61.69	2.61	3.03	22.30	76.70	1.00	....	......
Establishment No. 3..	60.37	108.13	34.19	3.00	4.95	....	18.70	43.80	37.50	......
Establishment No. 4..	76.55	81.94	67.60	1.90	2.48	16.00	60.00	20.00	4.00	......
Plain worsteds:										
Establishment No. 1..	80.34	109.97	64.69	2.25	2.80	1.90	94.20	3.90	....	......
Establishment No. 2..	73.08	96.31	62.19	1.88	2.57	4.00	60.00	29.40	5.30	1.30
Establishment No. 3..	84.05	107.56	66.17	2.12	2.53	12.80	87.20	....	....	......
Establishment No. 4..	63.91	120.59	68.35	1.94	3.03	5.90	17.60	64.70	11.80	......
Establishment No. 5..	65.08	104.27	48.89	2.43	3.74	6.70	23.30	53.30	16.70	......
Establishment No. 6..	69.17	104.50	56.93	2.17	3.14	1.10	43.80	48.10	7.00	......
Establishment No. 7..	65.82	128.00	51.20	2.79	4.24	30.00	60.00	10.00	....	......
Establishment No. 8..	91.68	92.00	64.25	2.21	2.41	62.50	37.50	....	....	......
Mohair, alpaca, and luster dress goods and linings:										
Establishments Nos. 1 to 5.................	65.47	160.30	48.22	3.05	4.65	....	30.40	64.10	5.50	......

In the first of the above tables efficiency data on 11 staple woolen fabrics are shown and from these it would appear that in general a higher efficiency can be secured in weaving a plain fabric than a fancy one. For instance, higher averages are shown on plain cassimeres than on fancy cassimeres; likewise for plain overcoatings as compared with fancy overcoatings.

This is not surprising since a fancy fabric is more difficult to weave than a plain fabric, because of a more complicated construction, or the use of several colors of filling, or both.

The highest efficiency on any woolen fabric is shown for plain cheviots—83.77 per cent in establishment No. 2, and the next highest, 81.94 per cent, for uniform cloths. The lowest efficiency figures are shown for fancy overcoatings and cloakings—50.66, 52.33, and 53.33 per cent.

It will be observed further that on the same line of fabrics there are wide differences between establishments, except perhaps in plain cassimeres.

It will be observed in the second of the tables above that, on the whole, a higher average efficiency was secured in the weaving of plain serges than for any other worsted fabric shown. Five of the ten mills had an average of more than 80 per cent. The averages for plain serge were much better than for fancy serges.

Three of the eight mills making plain worsteds had an average of more than 80 per cent, one having an average of 91.68 per cent. On the whole, better results—so far as productive efficiency was concerned—were secured in weaving plain worsteds than on fancy worsteds.

The following tables show the number of looms, but it can be said that each loom represents a weaver and accordingly, in the following discussion, the term "weaver" will be used interchangeably with "loom." But it should be stated in this connection that in a great majority of cases, operatives weaving plain or fancy serges, or plain and fancy worsteds, tend two looms, while the yardage shown in the following tables is the product of one loom.

If the weaver was producing on both of his looms a plain serge, with the same number of picks per inch and same speed of loom, his production on the two looms would be twice as great, under good conditions, as on one loom. But in many cases the fabric, speed, or picks per inch are not the same on the two looms operated by the weaver.

The following table shows the number and per cent of looms upon which plain serges were woven and upon which the specified yardage was produced per 10 hours of the actual weaving time of the weaver:

TABLE 77.—*Production of plain serge fabrics, classified by number of picks per inch and by speed of loom, with the number and percentage of looms on which specified yardage of cloth was woven in a day of 10 hours.*

[Based on weavers' efficiency data for a number of worsted goods establishments.]

Kind of cloth.	Average speed of loom (picks per minute).	Number and per cent of looms on specified cloths upon which the yards woven per 10 hours of actual weaving time of weavers (exclusive of idle time waiting for warp, filling, loom fixing) were—														Total looms.
		37 yards and over.		33 to 36 yards.		29 to 32 yards.		25 to 28 yards.		21 to 24 yards.		16 to 20 yards.		Less than 16 yards.		
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	
PLAIN SERGE.																
43 picks per inch..	120	39	30.71	35	27.56	30	23.62	12	9.45	8	6.30	3	2.36	....	......	127
44 picks per inch..	125	8	33.34	8	33.34	1	4.16	5	20.84	2	8.32	....	......	....	......	24
45 picks per inch..	121	3	6.00	19	38.00	19	38.00	5	10.00	4	8.00	....	......	....	......	50
46 picks per inch..	126	84	42.64	41	20.81	37	18.78	22	11.17	8	4.06	5	2.54	....	......	197
48 picks per inch..	126	22	38.60	10	17.54	5	8.77	9	15.79	8	14.04	3	5.26	....	......	57
49 picks per inch..	120	1	1.18	17	20.00	21	24.70	30	35.29	12	14.12	3	3.53	1	1.18	85
50 picks per inch..	122	1	1.82	16	29.09	7	12.73	11	20.00	12	21.82	5	9.09	3	5.45	55
52 picks per inch..	120	....	......	21	20.19	25	24.04	30	28.85	17	16.35	8	7.69	3	2.88	104
54 picks per inch..	125	....	......	12	22.64	24	45.28	16	30.19	1	1.89	....	......	....	......	53
55 picks per inch..	126	....	......	1	1.22	11	13.41	33	40.24	27	32.93	9	10.98	1	1.22	82
56 picks per inch..	123	....	......	33	11.79	114	40.72	79	28.21	37	13.21	13	4.64	4	1.43	280
58 picks per inch..	125	....	......	46	14.46	158	49.69	84	26.42	21	6.60	7	2.20	2	0.63	318
59 picks per inch..	109	....	......	....	......	....	......	4	8.88	26	57.78	14	31.12	1	2.22	45
60 picks per inch..	124	....	......	....	......	131	40.06	115	35.17	59	18.04	19	5.81	3	0.92	327
62 picks per inch..	122	....	......	....	......	55	27.68	46	23.12	63	31.66	31	15.58	4	2.01	199
64 picks per inch..	119	....	......	....	......	....	......	96	38.86	88	35.63	51	20.65	12	4.86	247
65 picks per inch..	114	....	......	....	......	....	......	42	9.50	230	52.04	162	36.65	8	1.81	442
66 picks per inch..	109	....	......	....	......	....	......	1	3.12	19	59.38	12	37.50	....	......	32
68 picks per inch..	103	....	......	....	......	....	......	....	......	39	57.35	24	35.29	5	7.36	68
72 picks per inch..	118	....	......	....	......	....	......	1	2.44	14	34.15	20	48.78	6	14.63	41
74 picks per inch..	116	....	......	....	......	....	......	....	......	17	34.00	33	66.00	....	......	50
76 picks per inch..	125	....	......	....	......	....	......	1	2.78	18	50.00	15	41.67	2	5.55	36

The above table shows the range of production of plain serge of the weavers operating 2,893 looms. Plain serge is a staple and a standard fabric in the industry. The output of a number of establishments is almost entirely composed of serges, and it is a fabric from which the best weaving efficiency can be expected. Many of the looms are given over wholly to this fabric day after day for the entire year.

This table shows the yardage produced in the actual weaving time of the weaver, including the time the loom was in motion and the time it was stopped to tie ends and exchange bobbins, but excluding waits for warp or filling or loom fixing. The table shows the speed and picks per inch in each group of looms. In general it can be said that the lower the number of picks per inch in a fabric the faster it can be woven. It may also be said that, the number of picks per inch and the other factors being the same, the faster the loom the larger the number of yards of a given fabric that can be woven. The number of picks per inch is in general, however, a much more important factor than the speed of the loom.

Table 77 shows that 127 weavers were weaving a plain serge having 43 picks to the inch at a speed of 120 picks per minute. Of the total of 127 weavers, 39, or 30.7 per cent, produced 37 yards and over in 10 hours; 35 weavers, or 27.6 per cent, produced from 33 to 36 yards in 10 hours; 30 weavers, or 23.6 per cent, produced from 29 to 32 yards; 12 weavers produced 25 to 28 yards; 8 weavers produced from 21 to 24 yards; while 3 weavers produced from 16 to 20 yards in 10 hours.

The contrast in the production of closely woven goods is shown in the data for 442 weavers who were weaving a serge having 65 picks to the inch at a speed of 114 picks per minute, or 6 picks per minute slower than on the 43-pick goods.

Of the total 442 weavers, 42, or 9.5 per cent, produced 25 to 28 yards in 10 hours; 230 weavers, or 52 per cent, produced 21 to 24 yards; 162 weavers, or 36.6 per cent, produced 16 to 20 yards; while 8 weavers produced less than 16 yards in 10 hours.

It should be borne in mind that the smaller production in yardage on the goods having the greatest number of picks per inch has no bearing on the efficiency of the weavers, as those weaving the serges having 65 picks per inch might have had a greater efficiency than those weaving a greater number of yards having 43 picks per inch. The efficiency of the weaver is based on the time he keeps his loom in motion and producing. It should be understood that the 2,893 weavers shown in this table include weavers from a number of different establishments making the same class of goods. This applies also to other goods shown in the following tables.

The following table for fancy serges presents the same conditions as those for plain serges:

TABLE 78.—*Production of fancy serge fabrics, classified by number of picks per inch, and by speed of loom, with the number and percentage of looms on which specified yardage of cloth was woven in a day of 10 hours.*

[Based on weavers' efficiency data for a number of worsted establishments.]

Kind of cloth.	Average speed of loom (picks per minute).	Number and per cent of looms on specified cloths upon which the yards woven per 10 hours of actual weaving time of weavers (exclusive of idle time waiting for warp, filling, loom fixing) were—														Total looms.
		37 yards and over.		33 to 36 yards.		29 to 32 yards.		25 to 28 yards.		21 to 24 yards.		16 to 20 yards.		Less than 16 yards.		
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	
FANCY SERGE.																
47 picks per inch..	121	3	4.48	18	26.87	15	22.39	14	20.89	9	13.43	7	10.45	1	1.49	67
50 picks per inch..	117	1	2.63	2	5.26	10	26.32	14	36.84	7	18.42	4	10.53			38
54 picks per inch..	119					8	17.78	17	37.78	13	28.89	7	15.55			45
55 picks per inch..	121			1	2.63	5	13.16	14	36.84	12	31.58	6	15.79			38
58 picks per inch..	111					8	20.51	14	35.90	13	33.33	4	10.26			39
60 picks per inch..	114					3	3.66	35	42.68	18	21.95	22	26.83	4	4.88	82
64 picks per inch..	120					23	33.33	28	40.58	12	17.39	4	5.80	2	2.90	69
65 picks per inch..	113							5	9.62	20	38.46	21	40.38	6	11.54	52
66 picks per inch..	105									12	17.39	53	76.81	4	5.80	69
70 picks per inch..	110									1	5.26	12	63.16	6	31.58	19
81 picks per inch..	108											19	61.29	12	38.71	31

In Table 78 the same general results are noted as in the table for plain serge. In weaving, on looms of average speed of 121 picks per minute, fancy serge fabrics having 47 picks per inch, 67 weavers were engaged, of whom only 36 were able to weave 29 or more yards in a day of 10 hours, only 21 weavers producing more than 32 yards.

In weaving fancy serges having more than 50 picks per inch, there was only one weaver out of 444 who was able to weave more than 32 yards per day of 10 hours. This weaver made from 33 to 36 yards, but operated a loom making 120 picks per minute. Only 48 weavers among 444 engaged in making fancy serges having more than 50 picks per inch were able to weave more than 28 yards per day.

The following tables for plain and fancy worsteds present the same data as shown above for serges:

TABLE 79.—*Production of plain and fancy worsted fabrics, classified by number of picks per inch and by speed of loom, with the number and percentage of looms on which specified yardage of cloth was woven in a day of 10 hours.*

[Based on weavers' efficiency data for a number of worsted goods establishments.]

Kind of cloth.	Average speed of loom (pick per minute).	Number and per cent of looms on specified cloths upon which the yards woven per 10 hours of actual weaving time of weavers (exclusive of idle time waiting for warp, filling, loom fixing) were—														Total looms.
		37 yards and over.		33 to 36 yards.		29 to 32 yards.		25 to 28 yards.		21 to 24 yards.		16 to 20 yards.		Less than 16 yards.		
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	
PLAIN WORSTED.																
48 picks per inch.	109	....	......	4	14.28	4	14.29	12	42.86	4	14.29	3	10.71	1	3.57	28
50 picks per inch.	109	....	......	2	6.06	6	18.18	14	42.43	8	24.24	3	9.09	....	......	33
52 picks per inch.	116	....	......	10	9.62	39	37.50	24	23.08	22	21.15	8	7.69	1	0.96	104
56 picks per inch.	103	....	......	....	......	16	10.74	37	24.83	42	28.19	44	29.53	10	6.71	149
58 picks per inch.	108	....	......	....	......	7	22.58	7	22.58	10	32.26	7	22.58	....	......	31
60 picks per inch.	100	....	......	....	......	....	......	16	10.19	44	28.02	80	50.96	17	10.83	157
62 picks per inch.	105	....	......	....	......	....	......	8	14.81	25	46.30	16	29.63	5	9.26	54
64 picks per inch.	104	....	......	....	......	....	......	....	......	26	59.09	18	40.91	....	......	44
68 picks per inch.	113	....	......	....	......	....	......	6	18.18	18	54.55	6	18.18	3	9.09	33
70 picks per inch.	112	....	......	....	......	....	......	....	......	19	79.17	4	16.67	1	4.16	24
74 picks per inch.	107	....	......	....	......	....	......	....	......	10	35.71	12	42.86	6	21.43	28
80 picks per inch.	111	....	......	....	......	....	......	....	......	3	7.89	19	50.00	16	42.11	38
FANCY WORSTED.																
46 picks per inch.	128	5	26.31	3	15.79	6	31.58	2	10.53	2	10.53	1	5.26	....	......	19
48 picks per inch.	115	1	5.00	3	15.00	2	10.00	10	50.00	4	20.00	....	......	....	......	20
50 picks per inch.	117	....	......	5	14.71	11	32.35	11	32.35	6	17.65	1	2.94	....	......	34
52 picks per inch.	123	3	1.90	18	11.39	49	31.01	53	33.55	29	18.35	6	3.80	....	......	158
54 picks per inch.	121	....	......	2	1.67	12	10.00	50	41.67	33	27.50	23	19.16	....	......	120
56 picks per inch.	116	....	......	....	......	11	14.94	23	33.33	23	33.33	11	15.95	1	1.45	69
58 picks per inch.	118	....	......	....	......	11	15.94	25	36.23	24	34.78	9	13.05	....	......	69
60 picks per inch.	112	....	......	....	......	2	2.08	6	6.25	32	33.34	43	44.79	13	13.54	96
64 picks per inch.	101	....	......	....	......	....	......	4	7.14	20	35.71	27	48.22	5	8.93	56
68 picks per inch.	117	....	......	....	......	....	......	6	18.75	13	40.62	10	31.25	3	9.38	32
72 picks per inch.	112	....	......	....	......	....	......	....	......	11	47.83	7	30.43	5	21.74	23

The average speed of the looms engaged in weaving plain worsted fabrics ranged from 100 to 116 picks per minute, 414 of the 723 looms making from 100 to 105 picks per minute.

The number of picks per inch ranged from 48 to 80, the principal fabrics being those having 52, 56, 60, and 62 picks per inch.

Of the 104 looms on which 52-pick plain worsteds were produced, there were none that produced more than 36 yards in one day, but there were 10 with a daily production of 33 to 36 yards; 39 with a production of 29 to 32 yards; and 24 with a production of 25 to 28 yards. Altogether, there were 73 looms out of a total of 104 looms, or 70.2 per cent on which a production of 25 or more yards was made in a day of 10 hours.

Only 35.6 per cent of the looms on plain worsteds having 56 picks per inch (53 looms out of a total of 149 looms) attained a production of 25 or more yards per day. This proportion is only a little more than one-half of the production shown above for plain worsteds having 52 picks per inch. The marked difference in production is accounted for not only in the smaller number of picks but also in the speed of the looms, the 52-pick plain worsteds being woven on looms running at 116 picks per minute and the 56-pick fabrics being woven on looms making only 103 picks per minute.

The above table shows also that in weaving plain worsteds having 74 or more picks to the inch, on looms making 107 picks per minute no weaver produced more than 24 yards per day of 10 hours. Of course such a production is absolutely impossible on looms running 107 picks per minute, since the theoretical production on one loom running 107 picks per minute and weaving a fabric having 74 picks per inch is 24.1 yards. (74 picks per inch × 36 = 2,664 picks per yard. Loom making 107 picks per minute will in one hour make 6,420 picks, and in 10 hours 64,200 picks. 64,200 ÷ 2,664 = 24.10 yards.) The theoretical production is, in fact, never obtained, for looms must be stopped at least a few times a day to tie-up broken ends or exchange empty for full bobbins in shuttles.

The same general differences noted above for fancy serge and for plain serge and plain worsted are true also of the production of fancy worsted.

MANUFACTURERS' COMMENTS ON EFFICIENCY OF WEAVERS.

The following letter was sent to manufacturers, after the data on the efficiency of weavers obtained by the agents of the board at the mills had been examined:

> DEAR SIR: You have in your mill a number of weavers of varying degrees of efficiency on the same class of goods (exclusive of learners). This is shown by the wide range of earnings on the pay rolls and the yards produced by each weaver in a given time. We find that some weavers secure the maximum of possible production from the looms they operate, while others do not do so.
>
> From your experience and observation, and that of the overseer of your weaving department, will you kindly let me know to what extent are the following factors responsible for the failure of so many weavers to obtain maximum production?
>
> 1. The loom.
> 2. The warp and filling used.
> 3. The weaver himself.
>
> Even under adverse atmospheric conditions and faults in warp and filling the differences in efficiency continue. What is wrong in the mental or physical make-up, or application of the inefficient weavers, and on the other hand what are the qualifications of good weavers?
>
> A prompt reply will greatly oblige.
>
> Very truly, yours, HENRY C. EMERY, *Chairman.*

The following are extracts from letters of manufacturers received in reply to the foregoing:

Establishment No. 1.—The loom is seldom out of order and is generally fixed within a very short time, an hour or two at the most. The warp and filling having been made in large lots in our worsted mill will run exactly as well in one loom as in another. The weaver varies. Some weavers have that peculiar knack of watching their warp and putting their bobbins in the shuttles carefully, and always alert to notice anything that is going wrong, and are onto the many tricks of the trade that make their work go easily. Others are careless, can not do any of the many little things that make their work run easily, and hence have to do a great deal more stopping than a good weaver. At one time we had a young woman who did more and better work than any of the other men and women weavers in the mill. Quite often we do not have the proper loom to weave with the greatest efficiency certain cloths, but it would not pay us to change, as possibly the next orders might require that very loom to weave efficiently on.

Establishment No. 2.—We are not at all surprised at the result of the efficiency test made by your representatives in our weave room. We have been aware of the fact for some time that some of our weavers were not getting the most effective work from their looms or making the pay which is possible to be made.

Fifty per cent of our looms are of the latest type Knowles looms, and the others, although of an older type, do nearly if not quite as good work, although they are not quite as fast as the new type. The warp and filling used is as good, if not better, than the average carded woolen mill uses. In case warp or filling does run bad, an allowance is made to compensate the weaver.

Now, as to the weavers, the whole fault lies with the individual. Our price list is based on the assumption that the average weaver on our kind of goods should earn $12 per week.

The writer has a weekly list of wages made by weavers on piecework posted in the weave room as an incentive to stimulate the individual, but there are certain women weavers whose average rarely, if ever, rises above $10, and in one case we have noted a woman weaver whose average wage is $9. This is based on a monthly average of good production and favorable conditions.

Most of our weavers are either persons too old to learn any new trade and have lost all ambition and are perfectly content to jog along from day to day with not much worry for the future, or floaters, who drift from one mill to another, who will get off an exceptional week's production, but pay day will see them on the road once more, bound for some other town.

Spinners are even more difficult to procure, and in brief labor conditions have reached a stage where we are forced to take anyone who applies in order to keep our machinery running.

Establishment No. 3.—Owing to the construction of the English loom it is almost impossible to have them run all alike. There is more slippage and more backlash than in the American loom, yet we prefer it for our kind of work. We make a great variety of styles and patterns, with consequently more or less frequent changes, and while such changes are being made the loom is standing. The loom fixer is responsible in some cases, due to a lack of interest or lack of regard for the rights of the weaver and employer—that is, by failure to give the weaver required assistance or to fix the loom promptly when it is out of order.

(2) Troublesome warp and filling and waiting for warp and filling should in the long run affect all weavers proportionately, except that the weaver who has natural aptitude for the work, quick fingers, and good eyesight is able to get out of his troubles sooner and enables him to produce more cloth.

(3) Lack of ambition, careless, slovenly, slow. It is more difficult to weed out the poor weavers in a mill located in a small community, as there is no waiting list to select from to fill their places, and vacancies are usually filled with learners, whereas in a larger place, having a number of weaving plants, it is practicable to insist on a maximum production, owing to the supply of experienced weavers near at hand to draw upon.

A good weaver—that is, one who can produce the maximum amount of good cloth—must be quick, with nimble fingers, good eyesight, clean and methodical, and anxious to earn and receive a good wage, and willing to pay the price by being on the job all the time. The poor weaver is sure to lack some of these qualifications.

Establishment No. 4.—The weavers (and in fact all our employees) are not nearly as efficient and as steady as they were some years ago, and we do not get as good work as we used to. The new labor that we get is largely Polish, as compared with English, German, and Irish a few years since. The Polish are not nearly as good a class of help as the former, and they are not as well educated. Then, we have more changes of employees than we used to; consequently, we are continually breaking in new help, which tends greatly to reduce the efficiency.

Establishment No. 5.—The loom may with some weavers be responsible, although the same make and speed. For instance, should they for some reason or other be placed on another loom that they are not accustomed to, it takes some time for them to get into their usual gait. Again, with others it is not so. It depends upon the make-up of the weavers themselves. This applies more to the females than the males.

The warp in some cases may not be as strong as in others for various reasons—the color or imperfect carding or spinning. This applies also to the filling.

At the time the test was made weavers using yarn of the same batch wove much less cloth than others—same construction—thus proving that the fault was in the weavers themselves.

We would say that the weaver is responsible in 9 out of 10 instances, either from indifference or not applying themselves as they might and should. A good weaver is one who endeavors to keep the loom running, quick at tying knots and replacing shuttles, and always on the lookout to avoid accidents that will cause the loom to stop.

Establishment No. 6.—(1) *The loom.*—It is always our plan to weave each fabric in the loom best adapted to its production. Our product, however, is so diversified that frequently we are under the necessity of weaving cloths upon looms not entirely appropriate for the purpose. As an example of this: The week's record of our weaving product carried away by your agent shows a number of 62-inch looms running at 122 picks per minute on cloths 37 to 38 inches wide in the reed, which fabrics could be produced more economically and efficiently on looms 24 inches narrower and running 30 picks per minute higher speed. Weavers producing narrow goods on slow-speeded wide looms will show a less product if their yardage is compared with that of other weavers fabricating the same cloth on high-speeded narrow looms. If, however, the standard of a weaver's efficiency is based solely on speed of loom, the attendant of a given number of slow-running looms on a stated cloth should show greater efficiency than the operator of the same number of fast-running looms on the same fabric, for the reason that on the latter type of looms breakage of yarns and stoppage of machines are more frequent.

The number of looms allotted to a weaver is an important factor in the matter of efficiency—if the assignment is too large, the efficiency will be correspondingly low.

At this mill, as far as is practicable, the various kinds of cloth to be woven are equally apportioned among all the weavers, and it is no uncommon practice for weavers to concentrate their energies upon certain looms which are running on cloths that they like to weave and to neglect to an appreciable extent one or two other looms which are assigned to fabrics which they regard as more difficult or less remunerative to weave. Such weavers show high efficiency on the looms they favor and the opposite on the looms neglected.

(2) *The warp and filling used.*—The weaving qualities of the different warp yarns vary widely. In a general way twofold cotton warps weave well, but with single cotton warp there is more breakage. Twofold worsted warps ordinarily make good weaving yarns, but fine single worsted warps often require much patience and skill to successfully pass them through the loom. Single warps made of one-fourth blood or lower stock present special difficulties to the weaver by reason of the long, shaggy beard projecting from the core of the thread and causing so much entanglement and breakage in passing through the lease rods and harnesses.

To weave well a worsted warp, particularly if the yarn is single, must be carefully warped and properly sized, and any appreciable variation in sizing, either on the hard or soft side, affects the weaving qualities unfavorably.

In the weaving of ladies' dress goods difficulties are encountered peculiar to this department of textile manufacture. Some fabrics are of so sheer a character as to render their production possible only by the use of fine single yarns spun to their utmost limit of fineness. Such threads are so delicate and tender that only by the utmost skill and care can they be successfully manipulated on the loom.

The distinguishing characteristics of many popular cloths can be attained only at the sacrifice of every good weaving condition and from the standpoint of cloth construction are abnormities. A nice prunella will have 150 warp threads to the inch and about 60 filling threads, and it is a serious problem to the weaver how to coax such a dense mass of threads over the lease rods and through the eyes of the harness without breaking. The antipodes of this is a fine grade Henrietta with 56 fine warp threads and 160 filling threads to the inch. The problem here is to make the few threads of warp withstand the severe beating of the lay, whose action is to obscure the warp and throw the filling onto the face. A taffeta that will find acceptance with the trade can be produced only by a merciless depression of the harnesses, which subjects the fine warp threads to a most unreasonable strain. These are examples of the trying condition imposed upon the dress-goods weaver and explain in some degree his failure to secure what the casual observer might expect.

(3) *The weaver himself.*—Under normal trade conditions there is a scarcity of good weavers, and help have to be taken on who are ignorant of our requirements, and thus more or less incompetent. Recognition of this fact has stimulated the adoption of automatic devices on looms for the prevention of bad work. Many persons following the weaver's craft have missed their calling; nature intended them for other occupations; the deft hand and alert eye, so essential to successful weaving, are plainly lacking. They mean well, but their work gets ahead of them, and they spend their days in futile efforts to catch up; before one fault is corrected another appears, and it is from such operatives that most of the imperfect cloth comes.

Weavers in dress-goods mills, particularly where there are automatic looms, run more looms than in men's wear mills, and when the latter are busy they draw heavily upon dress-goods organizations for their supply of weavers. In turn the dress-goods mills draw on the cotton mills for recruits, and it takes several months for a cotton weaver to become a good worsted weaver. Meanwhile efficiency is not the highest.

The class of weavers is numerous that prefers easy, comfortable work with medium wages rather than work of higher grade and better pay. This lack of exertion and absence of ambition on their part tends to keep down efficiency.

The weavers do not all possess equal skill or physical power. In our employ are many weavers 45 years and older, who are still producing good cloth, but whose product is being impaired by advancing years. Some of our most competent weavers are women 20 to 30 years of age, who right in the stage of their greatest efficiency relinquish their occupation and get married. In Europe weavers are more contented with their vocation and plan to remain in it all their lives. In numberless instances entire families for generations past have all been weavers, and such operatives acquire a measure of dexterity and skill which is not so fully met with in American mills. Neither is it the rule for young women to give up their mill occupation upon marriage; most of them continue their mill employment for several years after.

Our best weavers to-day are French Canadians, both sexes, 18 to 40 years of age. They are a thrifty class and seek to earn all the money they can. We have fewer Belgians than formerly; these are good and skillful workers, but object to running too many looms. Naturally they have been working their way into men's wear mills. Germans are good weavers, but of these we have now scarcely any. Not many Americans are to be found weaving in our mills; but of Scotch, Irish, and English we have a strong representation as respects number. Among our good weavers are a few Portuguese, mostly women; we have also taken on a number of Polish women who have recently learned to weave and who doubtless will attain a fair degree of competency when they have become experienced.

Establishment No. 7.—The question of degree of efficiency in our weavers has been a matter that has given us a great deal of annoyance and study. If we could supply our mill with weavers equal to the best which we have it would make a very decided difference in the cost of our production. This, however, is impossible. The best weavers we have, learned to weave in our mill and have been with us in some cases nearly 25 years. I have in mind three of the women weavers who have been working for us steadily for 22, 23, and 24 years, respectively. They are among our most efficient producers.

In regard to the causes of the difference under the headings designated we should put it as follows:

(1) *The loom.*—Ten of our looms are equipped with direct-connected motor drives. The speed under this method of driving is absolutely steady and uniform, and it is, therefore, possible to run the loom at a slightly higher speed than on the belt-driven looms. The absolutely steady speed also results in the work coming somewhat better. These looms are run at 5 to 7 per cent higher speed than our belt-driven looms. The 20 remaining looms are belt driven and due to the causes outlined above give a slightly less production.

(2) *Warp and filling used.*—Poor warp and filling of course result in a great reduction in efficiency of the loom, but this has a very small bearing in our case. Our work being all on high-grade goods, we do not have the troubles that exist where low-grade shoddy mixtures are used.

(3) *Weaver himself.*—This is a large factor of difference in the efficiency of the different weavers. The qualities that make up a first-class weaver are general intelligence, coupled with a cool head and good eyesight, and the power of concentration and application. The weaver who is interested in his work, is nimble fingered, and uses his brain to save his hands, will far outstrip the sluggish, indifferent, clumsy weaver. We have great difficulty in obtaining efficient weavers here. The weavers who have learned the trade in our own mill, and who have been with us for a greater or less number of years are far superior to the weavers we obtain from out of town. We even find that weavers coming from families, where their father or mother were mill hands before them, take to the work more readily and become more efficient help than those coming from families not familiar with the textile business.

Establishment No. 8.—First. It is not because of the loom, as we must necessarily keep our loom equipment up to a high state of efficiency as far as mechanical working goes.

Second. It is very, very seldom that the cause is in the warp or filling used, although in very exceptional cases there will be, in spite of the utmost precaution, one lot of soft filling or a lot of soft warp yarn because the same grade of wool is not always of the same strength.

Third. It is almost always the weaver himself who is at fault, as for instance, some weavers will stand at the loom and keep it in operation from the minute the speed starts until it stops, while another weaver will stop his loom for 3 or 5 or 10 minutes to go to another part of the room and talk to some friend, or who will stop his loom 10 or 15 minutes before quitting time to clean up.

Again, two weavers may run their looms every minute the speed operates it and one will produce more yardage in the same length of time than the other, due to the higher efficiency of the first man, who thinks quicker, acts quicker, and generally produces the best cloth.

Another instance, where a weaver would complain to his boss that a warp on his loom would not run right, the filling was not right and he could not produce good cloth from it, yet another man placed on the same loom with the same warp and filling, will produce perfectly merchantable cloth and produce it faster than the man who complained of it.

Of course, there always is and always will be in a fancy mill some variation in weavers' wages, due not to the weaver himself altogether but to the fact that it is impossible to balance the fancy mill so as to keep every loom filled up with warp or, even if the warp is in, to have filling ready for every loom at all times, and occasionally a weaver has to wait a half hour or an hour or a half day for a lot of filling to come through for his warp.

Our fabrics are made entirely of new original clips of wool with the staple in, one fabric being made of a high three-eighths blood quality and the other fabric of fine wool, no shoddy or other adulteration being used, the goods not even carrying their own waste. Consequently, we produce a very strong well-made yarn and the cloth weaves very much better and faster than in a mill where the yarns carry a percentage of waste or shoddy. Therefore, we consider the following are the qualifications necessary for the production of good cloth:

First, the mechanical condition of all parts of the loom.

Second, the stock used, and,

Third, the weaver himself; but granting these three conditions as being theoretically perfect, on an average, looms will not produce beyond 75 per cent of their efficiency, although this depends very largely upon the weaver himself.

The qualifications we consider necessary to make a good weaver are, first, he must understand weaving; second, he must be ambitious to produce perfect cloth and the maximum yardage, and to produce perfect cloth, he must be quick of eye and nimble with his fingers, so that he can detect quickly a broken thread in the warp or a mispick, so that he can stop his machine quickly, and must have the judgment which tells him whether, when an imperfection occurs in the cloth and he has woven a little beyond this imperfection, it is better to pull out the filling back to the imperfection or to mark it and go on with his weaving.

While the records you took in our mill were at a time when we were slack in work and consequently not really representative of the average conditions, we find that when we are crowded with work and therefore going in the best possible manner, that some weavers will make $15 to $17 a week, week in and week out, while perhaps on identically the same kind of work, others will make only $11 to $13, and so far as we have been able to find out, the difference is caused entirely by the weaver himself; one will waste absolutely not a minute, keeping his loom running every minute he can, while the other will waste his time away and will not be as active or as quick in his work.

There is still another factor which enters somewhat into this question and that is the favoritism shown by the overseer:

While we endeavor to have an overseer treat each and every weaver alike, it is human nature that each overseer will have a few favorites in the mill and a few whom he dislikes, and if one pattern is a little harder to weave than another or he should get a bad lot of filling through, he will invariably give the harder pattern or the bad lot of filling to a weaver whom he dislikes.

However, we consider this is almost a negligible reason to be used in the cause of the difference of the earning power of the weavers.

In conclusion, we find the same difference in efficiency of spinners, even on the same class of work and largely for the same reasons, and so far as our knowledge goes we think there is the same difference of efficiency in any other line of industry or even in clerical help in offices.

Establishment No. 9.—All our looms are new, of the best and latest patterns obtainable in each country, and are set up so carefully as to insure perfect operation. You can easily see that it is in our own interest to do everything in our power to attain a maximum of production. Failure in this respect, so far as our mill is concerned, lies entirely with the weaver himself.

With regard to the warp and filling used, we can say that this is spun in our own spinning mills and is the best possible yarn that could be used. There is, therefore, no trouble in this respect. This is clearly shown by the fact that in many cases weavers who attain the maximum of efficiency use yarn from the same spinning lot as those who are least efficient.

In our mill only about 25 per cent of the weavers can be considered good.

As to the qualities of good weavers, it is hard to describe them. The essential qualities are alertness and dexterity, and as the work is not heavy, requiring no great physical strength, women are often as good weavers as men, and sometimes better. Above all things, however, a weaver must have years of training in weaving all the different kinds of fabrics before he or she can really be called a good weaver. Under the hitherto prevalent violent fluctuations in the industry such life-long training has only been possible in very exceptional cases and in such places where local conditions have been more like those in Europe. This has again been brought to our special notice during the past summer. When the mill was running part time, many of our best and most energetic and ambitious workers, whom we had with great trouble educated for our special kind of work and who were dissatisfied at not making full wages, sought other industries. Now, when we are running full time again, we find we have only the poorer help and are almost in as bad a position as when we first started. It is impossible to repeat too often the great advantage possessed by the older European centers of the woolen and worsted industry. The operatives in those towns, even if they earn less than they might do elsewhere, will not break up their associations and move away as they do here. They are attached to their work and to their homes. Here the operatives have scarcely time to become domiciled before business is subjected to a violent setback and they are forced to seek work in other towns. The disadvantages of all this for mill owners are twofold: First, we thereby lose our best people, and secondly, upon the resumption of activity we have to break in new people again.

Establishment No. 10.—We are glad to receive your letter because it shows that you are thoroughly going into this thing in a businesslike way; and I desire to state that the reasons that we do not get an average production from all of our looms is not on account of the loom, not on account of the warp or filling, but on account of the weaver, her or himself.

We have such a large fluctuation of weavers who are constantly coming and going, that we are practically teaching weavers all the time, and up to the end of last week from the first of this year our records show that 764 weavers came and were taught, stayed less than two months, and disappeared. Then, of course, this same formula had to be gone over again.

Weaving is much more difficult than the average person who comes from the farms and rural districts, not only in this country but from foreign countries, anticipates; and the average that makes good in 1 in 12.

As you will see by the names of all our employees they are very largely made up of foreigners, and to this we attribute the constant coming and going, as they come to this country from stories they have been told that money is easy to make in America. There also are a great many positions open for them in which as much money can be earned without the same amount of brains or skill being necessary.

Establishment No. 11.—In general terms it should be noted that there is intrinsically a difference in weaving possibilities between essentially different fabrics and essentially different kinds of looms. That is, it would be quite improper to judge a weaver's efficiency in comparing a fabric made of a single worsted yarn with one made of a single cotton yarn, or with any two-ply, whether cotton or worsted. So far as materials go, in broad terms, it might be said that a two-ply cotton warp is probably the best of weaving materials. Next to this would come the two-ply worsted warp, or, perhaps, even the single cotton warp, under certain circumstances. But a single worsted warp is in a class by itself. Of course, there is a possibility of some variation between the warp or the fillings in goods of identically the same makes, but this difference in a well-run room should not be very great. Moreover, where the atmospheric conditions are kept fairly uniform there should not be great variations due to this.

As regards the loom there is, of course, a very material difference in possible production from an automatically operating loom and one which is not automatic, and between a fancy head, either Jacquard or Dobby, and a plain loom. This difference would show up in any relationship which may be attempted between the classes of fabrics so woven, and would require very careful study in each individual case to give a proper interpretation to the differences which might be found.

These tests which have been exhibited having been made on warps which are many of them now out of the looms, we can not, of course, go back and study the question of any variations for the same class of material as such, but so far as we are aware there was no such great variation between nominally the same material as used by different weavers, and yet there is in some instances at least a very marked difference between the results obtained on the same looms, on the same fabrics, by different weavers. Unquestionably, some of this is due to the intrinsically different capacities of weavers, but in other cases the difference in efficiency should be regarded only as temporary, and for this reason: That during the last summer, when we had so little work for our weave rooms to do, in order to retain our oldest weavers we shut down our No. 1 weave room entirely and transferred the weavers into our No. 2 weave room, where they would be running in many instances an entirely different class of looms to what they had been used to. This indeed is a large factor in the efficiency of the American weavers, in that they are liable to pass from one mill to another and obtain work which is entirely different from that they have been accustomed to previously. This indeed is a cause of lack of efficiency with all classes of skilled help in the textile trade, particularly in a city like ———, where there is a great variety of such textile products produced and much changing about of help. This particular phenomenon is directly illustrated by the production of one quality whose condition we have carefully looked up. The quality in question is a Panama mixture—warp and filling of 2/40 worsted—a fabric which with a weaver who fully understands the work weaves well, but which requires expert care which can only be obtained by practice. We have taken the looms which were on this quality and arranged them in four groups, the grouping being based upon the hours running and the product per hour.

Now, it should be noted that on group 1 the weavers were all old experienced weavers either on this indentical type of loom or one somewhat similar. On group No. 2 the weavers were inexperienced on these particular looms but had had some experience on somewhat similar classes of work. Hence results better than in groups 3 or 4, where there had been no such similarity of experience. All of the weavers in groups 2, 3, and 4, with one or two exceptions only, had been transferred from our No. 1 weave room or were either new weavers or spare weavers. The exceptions referred to we have recognized as being naturally less efficient weavers than the average.

We have looked over the earnings of each of these groups since the time that this was taken, and with the few executions above noted we think there are indications of considerable improvement, but this is hard to determine precisely because the weaver is not paid for a cut until he gets it off the loom, and this makes the earnings from one week to another irregular.

We do not attempt to judge of the capacity of a weaver for a given work, unless she is manifestly ill adapted, until she has had an opportunity to demonstrate what she can really do. In our mill there is probably a greater variety of fabrics and classes of looms than would be generally found even in this country, and we suspect would be hardly comparable in this respect to foreign weave rooms. Speaking broadly again, the efficiency of the weaver depends not only on personal adaptation but on a degree of experience on the particular work in hand. We might further state that except for very heavy work it has been our experience that a woman will get a better product than a man, but when it comes to very heavy work, such as men's wear mills would be likely to have, we can well understand that they would prefer men weavers. It is doubtful if a woman could stand the strain for such heavy work. It then becomes a question of physical endurance rather than skill of fingers.

* * * * * * *

Product memorandum on four groups of looms on same fabric.

	Average hours run.	Average yards per hour.
Group 1:		
6 Looms	54.7	3.06
Group 2:		
5 Looms	53.7	2.62
Group 3:		
5 Looms	52.9	1.85
Group 4:		
6 Looms	20.9	1.83

Establishment No. 12.—This variation is not due to years of experience which some hands may have in comparison with others, but is due largely to the individuals themselves. We do not think that there are many mills equipped with machinery differing less than what our own does, as practically all our looms are alike—that is to say, where the same kind of work is in operation. To make this perfectly clear to you, will say that our report bears out the fact that we have a number of worsted looms, all of which are alike, and which are employed for worsted work only. On the other hand a certain class of woolen work is run on similar looms, while in a large measure our various styles of woolen work are made on practically the same looms and under the same conditions.

Would also advise that the warp and filling used for the same kinds of work are the same for all weavers.

With this explanation you will see that the differences are practically due to the individual weavers themselves, and from personal observations dating back 25 or 30 years we have never found that it differed materially, and that on the same kinds or classes of work and under exactly the same conditions, there are variations amounting to probably 25 per cent in the productive capacity of weavers.

As to what we consider the necessary qualifications of a good weaver we will say that we think they are about the same as the necessary qualifications in any other line or branch of work, and that the varying degrees of efficiency vary in about the same proportion to the varying degrees of intelligence that you find in the human family.

A good weaver generally has good common sense to start with, and an alert disposition which keeps them ever on the watch, enabling them to see a defect before a serious loss of time results. Their physical condition is another important factor, as a short or stout person does not usually make as expert a weaver as a more normal build would be. Good eyesight is another very important matter. A neat and tidy disposition is also another factor, so that you will see by the above that there are many conditions upon which depend the efficiency of weavers.

Establishment No. 13.—(1) Our looms are of two kinds, and the only difference in these that would affect production is that the picks per minute on the two kinds are slightly different, as shown on the test tickets supplied by your representatives.

(2) Our warp and filling are of the best woolen yarn, and we can not say that these would have any appreciable effect in increasing or diminishing the output.

(3) It is, in our opinion, in the weaver himself wherein lies his efficiency. The men weavers are as a rule more efficient than the women. Some weavers pay more close attention to their work than others; some again are quicker at changing the shuttles when the filling runs out. It lies with the man or woman whether he or she can get the maximum production from the loom; to do this it is obvious that there must be as few and as short stoppages of the loom as possible.

Establishment No. 14.—Of course we would expect more or less variation in the production of different weavers. This is accounted for, partially, in the loom, which is, however, a small percentage. The particular fabric that this weaver might have, for a short period, would also have effect; although, covering a period of six months, this would be eliminated.

We consider the largest part of this difference is due to the weaver himself, as there are certain people who have a natural ability for this kind of work, and others, while they may work as hard, do not seem able to get the same results. In the past 5 or 10 years it has been rather difficult to get many first-class weavers. We have been obliged to take many weavers who were not proficient, nor ever would be.

Establishment No. 15.—We do not know that the difference in the efficiency of weavers is any greater than the difference between individuals in any occupation. It is, of course, largely a guess, but in our weave room we would estimate that of the factors you mention perhaps 5 per cent of the difference in efficiency is due to differences in the looms, 25 per cent to difference in yarns, and fully 75 per cent to the weaver himself. We have selected six examples from the loom cards, illustrating the difference in weavers on the same work. Looms 42 and 46 are identical in pattern and age, the weavers both female, the hours practically the same, and the goods identical. One weaver wove 108 yards in 34½ hours, and the other 90½ yards in 34 hours.

Looms 49 and 50 are adjacent and identical, the weavers working in the same alley. The card of loom 49 gives the weight of the goods as 16.5, but this is a mistake, as it should be 14.5, the same as loom 50. These cards are therefore absolutely identical so far as conditions are concerned, yet weaver 49 wove 121 yards in the same time as No. 50 was working on 109 yards.

Looms 14 and 15 are also identical and the goods the same range, though different styles. Different colored yarns are different in strength, so, in these cases there might possibly be a difference in quality to account for part of the difference in in production (109½ yards in 34 hours against 77½ yards in 34½ hours). As a matter of fact, however, there can have been but little difference between the two styles, and the greater part of the 25 per cent difference in efficiency is undoubtedly due to the differences in the weavers.

Now, we are well acquainted with the six weavers mentioned above and the results are precisely what we would expect, and would be very similar in the course of a year's work. The differences were not due to accidental or unusual causes, but to differences in the temperament of the weavers.

As to what is wrong with the inefficient weavers, it is hard to say definitely. It is not necessarily due to laziness nor anything discreditable to the weaver. For instance, one of the inefficient weavers mentioned above is a woman of excellent character, conscientious to a marked degree, of German parents, ambitious, and hard working. These very good qualities seem to make her a comparatively poor weaver. She is too careful. The one who is compared with her is no more honest or faithful, but will turn off more and better work. The good weaver is one who, in the phrase of the weave room "keeps his belt on the tight pulley"; in other words, keeps his loom running. He will, when possible, change shuttles without stopping the loom. Some weavers are not able to learn to do this successfully. If he finds it necessary to stop the loom to put in a broken thread, he will do only what is absolutely necessary, then start his loom, and complete the work while it is running. The other weaver will complete the work before starting the loom, making a few seconds' difference. It is not a question of quick motions. One of the best weavers we have is a man of very slow, almost sluggish, motions. One of the poorest we ever had was a nervous, quick-motioned man. The first made every move count; the second made three unnecessary moves to one that was useful. We believe the same types will be found anywhere in any line of work.

In our opinion, what will make a good weaver will make a good workman in almost any line, especially mechanical. The good weaver has a "mechanical sense," which is lacking in a poor one. No doubt this is one reason why men are usually more efficient in weaving than women, who usually lack the "instinct for machinery," if it may be so called. A proof of this opinion is found in the fact that weavers as a class are less efficient now than they were 10 years ago. This is certainly true in our plant and, we believe, in the industry generally. The reason for this is that the best weavers go into some other line of industry where the pay is better. Many of our "stars" of past years went into the wire-fence industry. Many more, during the past three or four years, have gone into the automobile industry, of which the center for the country is only 50 miles from us. Some of our weavers who have gone into this business have made good and are now drawing several times as much as they could ever have hoped for in weaving.

We trust we have answered your questions satisfactorily. It is hard to do so briefly, and perhaps the best way to put it would be to say that a weaver needs the usual good qualities, ambition, energy, etc., and, in addition, a mechanical turn of mind, and the ability to make every move count. The new "scientific management" would teach the latter point to all weavers; but we are confident that no amount of teaching would make one of our poor weavers equal to one of the best, though it would doubtless improve him. It is partly temperament.

It is invariably true that the weavers who turn off the most work in a given time also turn off the best work. The extremely slow and careful weavers are the ones who turn out the poor goods. Of course, in this statement we are referring only to the honest workman, not to those who have no pride in their work and run it out as fast as they can, regardless of results.

Establishment No. 16.—My experience has been that what applies to almost any class of workmen running machinery applies to weavers—that to be a first-class weaver and get the maximum production from his loom he must first have interest in his work and ambition to get the best possible out of his loom. And, again, experience counts very much. As to the failure of so many weavers to obtain the maximum production, 95 per cent is owing to the weaver; 2 per cent is owing to the loom conditions; 3 per cent is owing to the warp and filling.

Establishment No. 17.—Relative to the varying degrees of efficiency of weavers on the same class of goods, would say the factor responsible for this variation is chiefly the individual not being able to adapt himself to the varying grades of work. For instance, a weaver may be a skilled operative on a fine class of work, yet when put upon a coarse fabric is unable to keep the loom running.

The best weavers are those of a nervous temperament, as they are quick of action in mind and in body, whereas a person of phlegmatic temperament is too slow in thought and in action, therefore can not produce the same amount of work in a given time. We have a concrete example of this here at our mill in the case of two sisters, one a girl of 21 years of age and the other who is 24 years. Both are good weavers, yet the first will produce the maximum efficiency while the other is only an average weaver.

Of great importance in this consideration is the fact that a large part of our weavers are drawn from the agricultural districts of Europe. They had attained their majority before having taken up the work as weavers, which trade they acquired in this country. These people do not make as good weavers as a boy or girl who has started to work on leaving school, say at the age of 14 years, and working in the mill for a year or two in some occupation like spooling, where they learn to be quick of action.

The variation in strength of warp and filling yarns in the same grade of cloth does not materially affect the efficiency, it being very slight. Likewise, the factor of loom breakage is also of negligible quantity, as looms running on the same grade of goods will run approximately the same length of time before breakage occurs.

Establishment No. 18.—We note your remarks about the number of weavers in our mill of varying degrees of efficiency on the same class of goods. We presume you mean by the same class of goods, goods with the same style number, as we do not think it would be fair to make this comparison on the number of picks per inch, as a great many styles having the same number of picks per inch have a different weave and also a different make-up in the texture, which would have more or less influence on the number of yards turned off of each loom.

We note from the record cards which your representative had at our mill that there is more or less difference in the number of yards turned off in a given time on exactly the same style of goods. By style we mean our style number. We do not think that this is due to any fault of the loom, as our looms are kept in the very best possible condition; nor do we think it is due to the warp and filling used, as we buy only the very best yarn and examine same very carefully before using it. We think the greater proportion of this is by far due to the weaver himself. Almost anyone of average intelligence can become a good weaver and we think the qualifications necessary are a sober, industrious man, and one who will give close application to his work.

Establishment No. 19.—Answering your inquiry as to what extent the following factors are responsible for the failure of so many weavers to obtain maximum production (1) the loom, (2) the warp and filling used, (3) the weaver himself, we beg to inform you, that the looms can not be held responsible for this at all. Sometimes the warp and the filling are not as good as they should be at the average, but this factor will never amount to more than 5 per cent of the looms which do not deliver enough goods. The main drawback, which we feel very much, is the weaver himself. As you know, it is impossible for us to find experienced weavers, and therefore we are obliged to teach most of our weavers ourselves, which causes us a great deal of unnecessary expense, not to speak of damages done to the goods while the apprentices are learning. Only a very limited number of these become real good weavers, who secure the maximum of possible production, while the rest of the weavers never come near to this maximum either by lack of skill or intelligence. As to our expert weavers, they seldom stay longer than three years. Many of the men take up other occupations, as agents, etc., while the girls get married, and then usually do not work any longer in the mills. The children of our weavers seldom take up the occupation of their parents, preferring to take up evening-school lessons, going to business colleges, and feel more inclined to take up occupations in offices, as chauffeurs, etc., as to work in weaving or spinning mills.

Establishment No. 20.—As you desire to know to what extent the three factors you name are responsible for these variations, I will answer them separately.

(1) *The loom.*—This has nothing whatever to do with it, as they are all alike and all run at the same speed—i. e., the shuttle makes the same number of picks per minute.

To insure the prompt adjustment of looms that may get out of order from time to time, we pay a bonus to each loom fixer in the form of a percentage of the wages of the weavers employed in his section of 18 looms. This equalizes stoppages from this cause.

(2) *The warp and filling used.*—It is, of course, the aim of every alert manufacturer to get the best possible working yarn of its kind. Good yarn means good production and good production means low cost per yard, because the wages of all day workers and all fixed and overhead expenses remain practically the same whether the yards produced be large or small in number.

But, when it unavoidably happens that poor yarn is received and there is no alternative but to use it or stop entirely, the poor yarn is equitably distributed among the weavers in order that the disadvantages may be shared equally.

(3) *The weaver himself.*—There are first-class weavers, good weavers, fairly good weavers, and "also rans." Distinctly poor weavers, of course, we do not keep.

It is just about as difficult to account for these degrees as it is to explain the difference in artists, machinists, carpenters, bricklayers, or baseball pitchers.

Natural manual skill, vitality, a quick eye, diligence, alertness, ambition, system, temperament—all are governing factors.

The good weaver never seems to be doing anything; the poor weaver always appears to be hard at work. The good weaver is quietly on the alert for things to happen; the poor weaver is always fussing around to catch up after they happen; consequently the good weaver not only produces more work but better work than the poor one.

It was formerly our custom to pay employees every two weeks. We noticed that the weavers' production for the last two days was invariably greater than for the previous days. We changed to a weekly pay day in order to get this spurt once a week instead of once in two weeks. This led to a further experiment in the form of a premium of $20, divided weekly among the 10 weavers earning the highest wages. While only 10 weavers received the extra pay, the production of the whole was increased by the effort all made to get into the premium class.

For awhile the increase in production was as much as 8 per cent, but in course of time the scheme became valueless for the reason that about 15 weavers invariably were among the winners, and then the rest stopped trying.

Establishment No. 21.—Our weave room is one of the hardest places we have to keep up in efficiency. Ambition and necessity are also governing factors. This answers the third question, " The weaver himself."

Our loom equipment is up to date and capable of maximum production at minimum cost.

I do not consider that the warp and filling used cut much figure in drawing comparisons, if all the weavers are using the same. It will have its effect, however, when comparisons are drawn between the use of yarns made of fine stock and those made of low-grade wool and shoddies. The same weaver would get less production on the latter, as they are more liable to run tender and break down, causing frequent delays.

Unfortunately so many medium and low priced goods have to be made to sell for a fixed market price that the use of low-grade stocks in order to meet these prices very often increase the manufacturing cost beyond expectations on account of the indifferent working qualities of the stock used.

Another feature affecting the production in a mill making fancy cassimeres is the numberless styles of patterns and colorings required by the trade in the last few years, necessitating such constant changing of warps in the looms and the consequent loss of time as compared to a mill weaving plain piece dyes like serges or a worsted mill using worsted yarns, which are of much stronger construction than woolen yarns.

Establishment No. 22.—We are unable to give you any reason why one weaver should turn out more goods and receive more wages than another, with the exception that it is a matter that is "up to the weaver" entirely.

The warp and filling and loom have nothing to do with it. We have watched this matter very closely, and we have decided that it is like any other business—that one man is better in some line of work than another, being able to turn out better work and more of it, and inasmuch as it is piece work the better man receives the most wages.

Establishment No. 23.—First. The loom has very little, if any, bearing on the efficiency of the weaver, assuming that the weavers have the same make of loom and the same kind of work.

Second. The warp and filling used may to a limited extent affect the efficiency from the fact that having a poor warp some weavers would be easily discouraged, while other weavers would work all the harder to get the warp out with the maximum wages.

Third. The amount of earnings that a weaver may make is due to the individual and the degree of attention which he may give his work, the human element being the main factor responsible for the different degrees of efficiency. The qualifications which go to make up a good weaver are that one must be quick in action both mentally and physically and temperamentally fitted for this kind of work.

IMPERFECTIONS.

To correct the imperfections occurring in the different manufacturing processes, especially in weaving, 1,375 menders and 1,364 burlers were employed in the establishments investigated, together with 219 inspectors and 64 foremen and subforemen. Every yard of cloth produced by the 5,412 weavers operating the 12,337 looms was closely scrutinized and the imperfections, so far as it was possible to do so, were remedied. The lumps and knots were removed by the burlers and the missing threads deftly sewed or woven in by hand by the menders, who, with a needle, follow the pattern through the thousands of ends. The total of weavers, looms, menders, and burlers shows that in all the mills there was an average of 1 mender to every 3.9 weavers or 1 mender to 8.9 looms, and 1 burler to about every 9 looms. The proportion of burlers and menders to looms and weavers varies in establishments, depending to a great extent on the efficiency of the weavers.

In one establishment the number of looms to 1 mender was 3.3; in another it was 8 looms to 1 mender; in a third it was 4 looms to 1 mender; in a fourth it was 7.8 looms to 1 mender. In the same establishments the number of weavers to one mender were as follows in the above order:

Establishment No. 1, 1.6 weavers to 1 mender; No. 2, 4 weavers to 1 mender; No. 3, 4 weavers to 1 mender; No. 4, 4.2 weavers to 1 mender.

The number of looms to one burler in the same establishments was as follows:

Establishment No. 1, 22 looms to 1 burler; No. 2, 1.7 looms to 1 burler; No. 3, 3.1 looms to 1 burler; No. 4, 6.7 looms to 1 burler.

The number of weavers to one burler in same establishments was as follows:

Establishment No. 1, 11 weavers to 1 burler; No. 2, 8.4 weavers to 1 burler; No. 3, 3 weavers to 1 burler; No. 4, 3.5 weavers to 1 burler.

Manufacturers frequently make the statement that there are no perfect woolen or worsted fabrics woven. To correct weaving imperfections to some extent, an electric warp stop motion, a loom attachment, is in use in many establishments.

Its working is described by a mill superintendent as follows:

> Weavers running two looms equipped with electric warp stop motions can not produce as many yards as they could with two looms not equipped with these warp stop motions, because the instant the warp thread breaks the warp stop motion stops the loom.
>
> If the weaver is working at one loom and a warp thread breaks on the second loom, that stops and remains standing until he finishes working on the first loom and turns to the second one to tie in the broken thread.
>
> Whereas, if the looms were not equipped with this warp stop motion, the second loom would continue to run when the warp thread broke until the weaver saw the break.
>
> At the time he discovered this break the loom may have woven several inches, which would have an imperfection in it.
>
> This broken warp thread that was not woven in would have to be sewed in by hand by a girl in the sewing room.
>
> While these warp stop motions retard the production, they increase the quality of the goods produced, and at the same time reduce the cost of sewing, as the goods produced are nearly perfect, as far as the weaving is concerned.

The following form in daily use in a number of mills shows tho extent and variety of imperfections and also indicates the errors of the weavers:

Piece No. ———; style ———.
Loom No. ———; weaver ———.
P. W. sewed by ———; No. ———.
D. W. sewed by ———; No. ———.

Imperfections.	Extent.	Rate.	Amount.
Smashes			
Light places			
Heavy places			
Reed marks			
Stains			
Wrong filling			
Overshots			
Floats			
Kinks			
Holes			
Ends out			
Double thread			
Wrong draw			
Wrong color			
Uneven warp			
Cross reed			
Mispicks			
Broken picks			
Double picks			
Uneven filling			
Filling drawn in			

Yards ———, pounds ———, ounces ———; total ———.

I have examined this piece and certify that all the above imperfections have been mended as far as is possible in a satisfactory manner.

——— ———, *Inspector.*

Piece No. ———; style ———.
Burled by ———; No. ———.
Yards ———; amount ———.

I have examined the above work and entries and believe them to be correct.

——— ———, *Foreman.*

In most establishments a system of fining prevails. The following posted in a number of large mills, together with the concluding notice, shows that manufacturers hold weavers responsible for bad work:

FINES FOR IMPERFECTIONS.

1. For floats, from 30 to 75 cents each, according to size.
2. For each bad piece caused by picking out, 37 cents.
3. For each yard of threads out, 15 cents per yard; no deduction for 2 inches or less.
4. For cloth woven with more than two picks out, $1.50; for cloth woven with 5 or more picks out nothing will be paid.
5. Face filling drawn in on the side, for 1 yard 30 cents, on back 8 cents.
6. Each mispick on face, 25 cents; for a double mispick, 50 cents.
7. Each flying lump, 15 cents.
8. Each yard of wrong draw, 15 cents.
9. Thread out on the back, 2 yards or more, 15 cents.
10. Mispicks on the back, 8 cents each.
11. Double mispicks on the back, 37 cents each.
12. Double threads, coarse threads, coarse filling, wrong filling, pattern changed, loom mispicks, harness skipping, reed marks, stop-motion marks, harness down, etc., according to damage.

The above list of fines will be strictly adhered to, the intention being to charge the weaver as near as possible to cost of repairing damages, which could by careful watching be avoided.

In other establishments a system of grading the weavers instead of fining prevails.

The weavers are divided into five grades. Weavers in the premium grade are paid the regular piece price for yard and 5 per cent premium for amounts earned in excess of specified sums. The piece price per yard in the other grades is graduated downward.

The following list of perfect and imperfect work regulates the grade in which each weaver is placed:

> Premium grade: No threads out over 4 inches; no broken picks; no heavy or light places.
>
> Grade 1: Allowed 3 broken picks, no mispicks; allowed threads out under 4 inches; allowed threads out over 4 inches—2 yards in a piece.
>
> Grade 2: Four broken picks, 1 mispick; threads out—3 to 8 yards in a piece; wrong draw or crossed color—3 to 8 yards in length; 2 avoidable heavy or light places.
>
> Grade 3: Over 4 broken picks, 2 or more mispicks; threads out over 8 yards; wrong draw or crossed color—8 yards or longer; 3 or more heavy or light places.
>
> Grade 4: Three or more mispicks; wrong draw through whole piece; 4 or more heavy or light places.

But the burling, sewing, and finishing processes fail to make perfect a large quantity of woven goods, and those imperfect goods have to be sold as seconds and at prices below those obtained for the goods known as perfect.

The agents of the board inquired into the effect of imperfections on the sale of goods. From 16 establishments it was ascertained that of 62,540,014 yards of cloth made, 1,362,496 yards, or 2.18 per cent, were seconds or imperfectly woven goods and had to be sold at prices below those of the regular goods. The seconds do not, however, represent all of the goods made which have to be sold below the regular prices. There are also remnants, shorts, patchwork, and waste. Remnants are cut from pieces having imperfections. In enumerating the losses on this class of goods and others, one establishment reported that—

> In the manufacture of goods for the men's wear trade there are large quantities of goods returned on account of the failure to sell them on the part of our customers, the goods being returned under some subterfuge of alleged imperfections, imperfect dyeing, etc., which frequently have to be sold at a heavy loss, as they are not returned until late in the season. By careful estimate on goods returned for the past three years, we find that about 20 per cent of our production is returned in this way, upon which we estimate our loss as being 10 per cent, equaling a net loss of 2 per cent on our entire production from this cause. There is also a loss on goods which are set aside as seconds, when they come through the finishing department, owing to imperfect weaving, dyeing, etc., which have to be sold at reduced figures, which, together with claims allowed for imperfections while goods are in the hands of consumers, equal approximately 2 per cent of the gross amount of production.

In an establishment manufacturing dress goods the percentage of the seconds yardage was as follows:

Worsted goods No. 1, 1.01 per cent.
Worsted goods No. 2, 2.28 per cent.
Wool goods No. 1, 2.50 per cent.
Wool goods No. 2, 4.50 per cent.

These are the percentages of the yardage of whole pieces made seconds and do not include allowances for imperfections or remnants cut from pieces for imperfections.

From another establishment having a large output records of perfect and imperfect yardage for six months ending in 1910 and for six months ending in 1911 were obtained.

Omitting the number of yards included in each group the percentage of perfect goods, seconds, shorts, remnants, and patchwork, together with the proportion sold at less than regular prices, are shown in the following:

Six months ending 1910.

	Worsted goods.		All-wool goods.	
	Per cent of product.	Prices obtained.	Per cent of product.	Prices obtained.
Perfects	95.43	Sold at regular prices	89.52	Sold at regular prices.
Seconds	2.02	10 per cent less than regular prices.	5.44	10 per cent less than regular prices.
Shorts	1.07	.....do	2.78	Do.
Remnants	1.22	26 cents per yard	1.92	35.75 cents per yard.
Patchwork	.26	20.52 cents per pound	.34	34 cents per pound.

Six months ending first half of 1911.

	Worsted goods.		All-wool goods.	
	Per cent of product.	Prices obtained.	Per cent of product.	Prices obtained.
Perfects	94.88	Sold at regular prices	91.22	Sold at regular prices.
Seconds	2.02	Sold at 10 per cent less than regular prices.	3.69	Sold at 10 per cent less than regular prices.
Shorts	1.13	.....do	2.73	Do.
Remnants	1.58	Sold at 21.75 cents per yard	1.94	Sold at 35.25 cents per yard.
Patchwork	.89	Sold at 17.02 cents per pound	.42	Sold at 18.02 cents per pound.

In the foregoing the remnants and patchwork are contracted for each six months, the price obtained for remnants being per yard and that for patchwork being by the pound.

GENERAL TABLE.

Table 80 presents the important facts contained in the data compiled from the loom records which were kept in the various weaving mills investigated and which have been described in detail at pages 1045 to 1065 in the chapter on "The efficiency of American weavers."

In the first 12 and the last column of Table 80 are shown the principal facts concerning the fabrics woven during the period for which the loom records were kept, namely, (*a*) the weight of the cloth per yard, (*b*) total number of warp ends, (*c* and *d*) size and quality of warp yarn, (*e* and *f*) size and quality of weft yarn, (*g*) number of shuttles, (*h*) number of harness, (*i*) speed of loom expressed in number of picks per minute, (*j*) number of picks of filling per inch of cloth. (*k*) number of yards woven, (*l*) the total time of weaver, and (*m*) the piece price per yard paid to weaver.

As has been already explained, these facts, with other data of less importance, were secured for practically every weaver engaged in regular production in the various establishments at the time the agents of the board made their investigations (May to October, 1911). They constitute, therefore, direct and first-hand authentic information concerning production of weavers in the United States and form the basis for the tables and text presented in the chapter on "The efficiency of American weavers."

Such basic data, it has been decided, should be published in detail so far as that could be done without disclosing the operations of individual establishments, since they constitute the first record of its kind available for public use and afford valuable material for a more extended study than is possible in this report.

In addition to the principal facts concerning the fabrics woven, there are shown for every fabric the following facts:

(*a*) The actual time (hours and minutes) that loom was in operation.

(*b*) The time (hours and minutes) lost in stoppages.

(*c*) Per cent of total time loom was in actual operation.

(*d*) Per cent of total time lost in stoppages.

(*e* and *f*) Number of yards woven per hour of total time of weaver and per hour of actual producing time.

These facts are the results of computations based on the speed of the loom, number of picks per inch in the cloth, the number of yards woven, and the total time of the weaver. The method used in making these computations has been described at page 1048.

In regard to certain facts shown in Table 80 it may be said that they describe the cloth "in the raw;" that is, as it leaves the loom. The weight given in Table 80 is therefore the weight of the cloth in its unfinished state, and the number of picks per inch is based on length of cloth in the loom.

In many cases the ply and count of yarn used is described as 2/30, and sometimes as 30/2. The meaning is the same in both cases, the smaller number representing the ply and the larger the count. Thus 2/30 yarn or 30/2 yarn means a two-ply worsted yarn No. (count) 30.

Woolen yarn is generally heavier than worsted yarn and is therefore, in most instances, single ply. Accordingly where no figure is shown in Table 80 for the ply of woolen yarn, single ply is always meant in the same manner as where the ply is indicated by the figure 1.

The size of woolen yarn is, in most of the mills investigated in the United States, numbered in runs, while worsted yarns are numbered in counts. As has been explained, 1-count yarn is yarn 1 pound of which contains 560 yards of single thread. In 1 pound of 20-count yarn there are 11,200 yards of single thread (20 by 560). One-run yarn is yarn 1 pound of which contains 1,600 yards of single thread, four-run yarn containing 6,400 yards of single thread (4 by 1,600).

In some instances the size of woolen yarn is expressed in terms of counts instead of runs, but this fact has been specially noted in every case.

As a rule the quality of worsted yarn used is described as 1/2 blood, 3/8 blood, high 3/8 blood, 1/4 blood, or 60's, 80's, fine Ohio delaine, fine medium, etc. These are the trade and market terms in common use in this country.

The quality of woolen yarn is not described in such detail, but is referred to merely as woolen (uncombed) yarn. There is a great variety of stock used in making up woolen yarn. In fact, in most cases a description of the elements would require too much space and would be of little or no value for the purposes of Table 80.

The following list shows a few of the varieties of stock used in making woolen yarn in the mills covered by the investigation for the given period.

Low-grade wool and shoddy.
XXXX Ohio.
Fine Australian noils.
Australian garnetted waste.
Ninety per cent X Ohio, 10 per cent waste.
Thirty per cent X Ohio, 70 per cent waste.
Medium.
Forty-five per cent Mexican; 35 per cent 3/8 blood; and 20 per cent noils.
Twenty-five per cent Mexican, 75 per cent noils.

The above are only a few of the many varieties of stock that are used in woolen yarn, but they add nothing to the value of Table 80.

The data shown in Table 80 represent a large range of woolen and worsted fabrics made in a large number of mills in various sections of the United States. Wherever the individual operations of a mill would be disclosed by giving the name of the fabric (some fabrics being made by only one or two mills) the loom records for such fabrics have been included in Table 80 under the caption "Ladies' Dress Goods, Worsted" or "Miscellaneous Worsted Fabrics" or "Miscellaneous Woolen Fabrics."

TABLE 80.—*Efficiency of weavers, with description of goods made.*

WORSTED GOODS.

PLAIN SERGE.

MALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.1	3,108	2-24	Worsted	1-18	Worsted	2	12	130	46	665	177 20	141 11	36 09	79.6	20.4	3.75	4.71	3.0
12.9	3,108	2-24	do	1-18	do	2	12	130	46	664	176 20	140 58	35 22	79.9	20.1	3.77	4.71	3.0
15.0	3,108	2-22	do	1-14	do	2	16	122	46	657	202 10	148 38	53 32	73.5	26.5	3.25	4.42	3.24
14.9	3,108	2-22	do	1-14	do	2	12	130	46	662	190 30	140 33	49 57	76.4	23.6	3.48	4.71	3.0
15.1	3,108	2-22	do	1-14	do	2	12	130	46	659	158 30	139 55	18 35	88.2	11.8	4.16	4.71	3.0
13.1	3,108	2-24	do	1-18	do	2	12	130	46	667	168 40	141 37	27 03	83.9	16.1	3.95	4.71	3.0
13.1	3,108	2-24	do	1-18	do	2	12	130	46	665	182 10	141 11	40 59	77.5	22.5	3.65	4.71	3.0
13.1	3,108	2-24	do	1-18	do	2	12	130	46	667	176 20	141 37	34 43	80.3	19.7	3.78	4.71	3.0
13.2	3,108	2-24	do	1-18	do	2	12	130	46	669	195 40	142 02	53 38	72.6	27.4	3.42	4.71	3.0
13.1	3,108	2-24	do	1-18	do	2	12	130	46	668	173 50	141 49	32 01	81.6	18.4	3.84	4.71	3.0
12.9	3,108	2-24	do	1-18	do	2	12	130	46	670	173 20	142 15	31 05	82.1	17.9	3.87	4.71	3.0
11.8	2,848	2-24	do	1-20	do	2	8	130	46	846	228 10	179 37	48 33	78.7	21.3	3.71	4.71	2.73
13.0	3,108	2-24	do	1-18	do	2	12	130	46	674	183 00	143 06	39 54	78.2	21.8	3.68	4.71	3.0
14.0	3,108	2-24	do	1-15	do	2	12	130	46	664	183 00	140 58	42 02	77.0	23.0	3.63	4.71	3.0
15.1	3,108	2-22	do	1-14	do	2	16	122	46	655	174 20	148 11	26 09	85.0	15.0	3.76	4.42	3.24
11.7	2,848	2-24	do	1-20	do	2	8	130	46	681	162 40	144 35	18 05	88.9	11.1	4.19	4.71	2.73
13.2	3,108	2-24	do	1-18	do	2	12	130	46	669	158 30	142 02	16 28	89.6	10.4	4.22	4.71	3.0
13.1	3,108	2-24	do	1-18	do	2	12	130	46	667	159 00	141 37	17 23	89.1	10.9	4.19	4.71	3.0
13.3	3,108	2-24	do	1-18	do	2	12	130	46	671	179 50	142 28	37 22	79.2	20.8	3.73	4.71	3.0
13.2	3,108	2-24	do	1-18	do	2	12	130	46	669	174 50	142 02	32 48	81.2	18.8	3.83	4.71	3.0
13.2	3,108	2-24	do	1-18	do	2	12	130	46	675	187 30	143 19	44 11	76.4	23.6	3.60	4.71	3.0
14.8	4,748	2/40	do	2/40	do	2	12	92	68	90¼	45 00	40 08	4 52	89.2	10.8	2.01	2.25	1.15
14.5	4,748	2/40	do	2/40	do	2	12	94	68	103¼	47 00	44 55	2 05	95.6	4.4	2.20	2.3	1.15
13.9	3,108	2/24	do	1/13	do	2	8	130	44	753	176 00	152 55	23 05	86.9	13.1	4.28	4.92	2.61
13.9	3,108	2/24	do	1/13	do	2	8	130	44	753	177 50	152 55	24 55	86.0	14.0	4.23	4.92	2.61
10.0	2,204	2/24	do	1/14	do	2	8	130	44	326	82 20	66 12	16 08	80.4	19.6	3.96	4.92	1.98
13.9	3,108	2/24	do	1/13	do	2	8	130	44	751	185 00	152 31	32 29	82.4	17.6	4.06	4.92	2.61

13.7	3,108	2/38	do	3/40	do	2	8	130	44	840	208 50	170 35	38 15	81.7	18.3	4.02	4.92	2.61
13.9	3,108	2/24	do	1/13	do	2	8	130	44	836	218 00	169 46	48 14	77.9	22.1	3.83	4.92	2.61
15.3	3,108	2/22	do	1/14	do	2	12	130	46	578	146 20	122 43	23 37	83.9	16.1	3.95	4.71	3.0
15.2	3,108	2/22	do	1/14	do	2	12	130	46	661	184 00	140 20	43 40	76.3	23.7	3.59	4.71	3.0
15.3	3,108	2/22	do	1/14	do	2	8	130	46	572	158 30	121 26	37 04	76.6	23.4	3.61	4.71	2.73
15.3	3,108	2/22	do	1/14	do	2	8	130	46	573	147 20	121 39	25 41	82.6	17.4	3.89	4.71	2.73
14.9	3,108	2/22	do	1/14	do	2	12	130	46	657	177 50	139 29	38 21	78.4	21.6	3.69	4.71	3.0
15.2	4,200	2/38	do	1/17	do	3	8	130	46	491	126 30	104 14	22 16	82.4	17.6	3.88	4.71	4.8
13.0	3,108	2/24	do	1/18	do	2	12	130	46	665	166 10	141 11	24 59	84.4	15.6	4.00	4.71	3.0
12.9	3,108	2/24	do	1/18	do	2	12	130	46	667	169 40	141 37	28 03	83.5	16.5	3.98	4.71	3.0
12.9	3,108	2/24	do	1/18	do	2	12	130	46	666	171 40	141 24	30 16	82.4	17.6	3.88	4.71	3.0
13.0	3,108	2/24	do	1/18	do	2	12	130	46	661	168 40	140 20	28 20	83.2	16.8	3.92	4.71	3.0
13.9	3,108	2/24	do	1/15	do	2	12	130	46	667	176 50	141 37	35 13	80.1	19.9	3.77	4.71	3.0
15.4	3,108	2/22	do	1/14	do	2	8	130	46	412	106 40	87 28	18 12	82.0	18.0	3.86	4.71	2.73
15.4	3,108	2/22	do	1/14	do	2	8	130	46	655	181 50	139 04	42 46	76.5	23.5	3.60	4.71	2.73
13.0	3,108	2/24	do	1/18	do	2	8	130	46	669	176 50	142 02	34 48	80.3	19.7	3.78	4.71	3.0
13.1	3,108	2/24	do	1/18	do	2	12	130	46	670	168 40	142 15	26 25	84.3	15.7	3.97	4.71	3.0
13.1	3,108	2/24	do	1/18	do	2	12	130	46	662	169 10	140 33	28 37	83.1	16.9	3.91	4.71	3.0
13.0	3,108	2/24	do	1/18	do	2	12	130	46	667	150 50	141 37	9 13	93.9	6.1	4.42	4.71	3.0
13.0	3,108	2/24	do	1/18	do	2	12	130	46	666	194 10	141 24	52 46	72.8	27.2	3.43	4.71	3.0
13.0	3,108	2/24	do	1/18	do	2	12	130	46	662	167 10	140 33	26 37	84.1	15.9	3.96	4.71	3.0
13.1	3,108	2/24	do	1/18	do	2	12	130	46	657	151 50	139 29	12 21	91.9	8.1	4.33	4.71	3.0
13.1	3,108	2/24	do	1/18	do	2	12	130	46	672	168 10	142 40	25 30	84.8	15.2	4.00	4.71	3.0
12.9	3,108	2/24	do	1/18	do	2	12	130	46	666	168 40	141 24	27 16	83.8	16.2	3.95	4.71	3.0
12.9	3,108	2/24	do	1/18	do	2	12	130	46	668	193 20	141 50	51 30	73.4	26.6	3.46	4.71	3.0
12.7	3,108	2/24	do	1/18	do	2	12	130	46	667	180 50	141 37	30 13	78.3	21.7	3.69	4.71	3.0
13.1	3,108	2/24	do	1/18	do	2	12	130	46	661	178 20	140 20	38 00	78.7	21.3	3.71	4.71	3.0
13.0	3,108	2/24	do	1/18	do	2	12	130	46	665	165 40	141 11	24 29	85.2	14.8	4.01	4.71	3.0
15.3	3,108	2/22	do	1/14	do	2	8	130	46	487	114 20	103 24	10 56	90.4	9.6	4.26	4.71	2.73
12.8	3,108	2/24	do	1/18	do	2	12	130	46	749	177 50	159 01	18 49	89.4	10.6	4.21	4.71	3.0
12.7	3,108	2/24	do	1/19	do	2	8	130	46	587	147 50	124 38	23 12	84.3	15.7	3.97	4.71	2.73
12.9	3,108	2/24	do	1/18	do	2	12	122	46	670	185 00	151 34	33 26	81.9	18.1	3.62	4.42	3.24
16.8	4,404	2/32	do	1/15	do	2	12	122	46	244	72 10	55 12	16 58	76.5	23.5	3.38	4.42	3.65
15.1	3,108	2/22	do	1/14	do	2	12	130	46	491	112 50	104 14	8 36	92.4	7.6	4.35	4.71	3.0
12.7	3,108	2/24	do	1/19	do	2	8	130	46	675	179 50	143 19	36 31	79.7	20.3	3.75	4.71	2.73
12.7	3,108	2/24	do	1/19	do	2	8	130	46	673	172 10	142 53	29 17	83.0	17.0	3.91	4.71	2.73
13.0	3,108	2/24	do	1/18	do	2	12	130	46	663	163 40	140 46	22 54	86.0	14.0	4.05	4.71	3.0
19.0	3,744	2/24	do	2/24	do	2	8	113	64	48½	20 20	16 29	3 51	81.0	19.0	2.40	2.94	5.3
15.0	4,224	2/36	do	2/32	do	2	8	113	64	63	25 50	21 25	4 25	82.9	17.1	2.40	2.94	5.3
15.0	4,224	2/40	do	2/40	do	2	8	113	65	105½	40 40	36 23	4 17	89.5	10.5	2.60	2.90	5.0
15.5	3,320	2-24	do	2-24	do	2	8	100	44	24	10 00	6 20	3 40	62.0	38.0	2.40	3.79	6.6
17.0	3,600	2-24	do	2-24	do	2	8	90	48	92	40 00	29 26	10 34	73.6	26.4	2.30	3.13	7.2
17.2	3,600	2-24	do	2-24	do	2	8	98	48	102	40 00	24 29	15 31	60.5	39.5	2.55	4.17	7.2
17.2	3,600	2-24	do	2-24	do	2	8	100	48	120	40 00	34 34	5 26	83.9	16.1	3.00	3.47	7.2
16.0	4,200	2-30	do	2-30	do	2	12	90	55	70	30 00	25 40	4 20	85.6	14.4	2.33	2.73	8.25
16.7	4,200	2-36	do	2-24	do	2	8	98	55	103	40 00	34 41	5 19	80.6	19.4	2.57	2.97	8.25
16.0	4,200	2-30	do	2-30	do	2	8	100	55	60	25 00	19 05	5 55	76.2	23.8	2.40	3.03	8.25
12.0	4,160	2-40	do	2-40	do	2	8	100	55	44	18 00	14 31	3 29	80.1	18.9	2.33	3.03	8.25
16.1	4,200	2-30	do	2-30	do	2	8	100	55	112	40 00	36 58	3 02	92.4	7.6	2.80	3.03	8.25
12.0	4,160	2-40	do	2-40	do	2	8	100	55	24	10 00	7 55	2 05	79.2	21.8	2.40	3.03	8.25
12.0	4,160	2-40	do	1-20	do	2	8	100	55	34½	16 30	11 23	5 07	68.0	32.0	2.09	3.03	8.25
16.0	4,200	2-40	do	2-30	do	2	8	102	55	106	40 00	34 17	5 43	80.7	19.3	2.65	3.09	8.25
12.0	4,160	2-40	do	1-20	do	2	8	100	56	82	40 00	27 33	12 27	68.8	31.2	2.05	2.98	8.4

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
											Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.			Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
14.5	4,320	2-36	Worsted	2-36	Worsted	2	8	100	60	105	40 00	37 48	2 12	94.5	5.5	2.62	2.78	9.0
16.8	4,120	2-30	do	2-30	do	2	4	123	52	273¼	81 20	69 23	11 57	85.3	14.7	3.27	3.94	4.41
13.6	3,520	2-30	do	2-30	do	2	4	123	52	106¼	40 40	27 01	13 39	66.4	43.6	2.62	3.94	4.05
14.0	3,520	2-30	do	2-30	do	2	4	123	52	136¼	39 00	34 04	4 56	87.4	12.6	3.49	3.94	4.05
14.2	3,520	2-30	do	2-30	do	3	4	123	52	124¼	40 40	31 35	9 05	77.7	12.3	3.06	3.94	4.68
14.0	3,520	2-30	do	2-30	do	2	4	123	52	286¼	81 20	72 40	8 40	89.3	10.7	7.08	3.94	4.05
14.0	3,520	2-30	do	2-30	do	2	4	123	52	140¼	40 40	35 38	5 02	87.0	13.0	3.48	3.94	4.05
21.0	3,600	2-20	do	2-20	do	2	8	123	52	117¼	40 40	29 44	10 56	73.1	26.9	2.88	3.94	4.05
13.2	3,900	2-36	do	2-36	do	2	4	123	60	122¼	40 40	35 47	4 53	88.0	12.0	3.00	3.42	4.59
13.6	3,100	2-36	do	2-36	do	2	4	123	60	103¼	40 40	30 13	10 27	74.3	25.7	2.54	3.42	4.59
12.4	4,140	2-40	do	1-25	do	2	4	123	64	96	40 40	29 58	10 42	73.7	26.3	2.36	3.2	4.86
12.2	4,140	2-40	do	1-25	do	2	4	123	64	125¼	40 40	39 11	1 29	96.4	3.6	3.08	3.2	4.86
12.4	4,140	2-40	do	1-25	do	2	4	123	64	74¼	33 30	23 21	10 09	60.7	39.3	2.23	3.2	4.86
12.2	4,140	2-40	do	1-25	do	2	4	123	64	212	81 20	66 11	15 09	81.4	18.6	2.53	3.2	4.86
12.4	4,140	2-40	do	1-25	do	2	4	123	64	55½	21 20	17 20	4 00	81.2	18.8	2.60	3.2	4.86
16.0	2,688	2-20	do	2-20	do	2	4	123	54	70½	22 30	18 34	3 56	82.5	17.5	3.13	3.8	5.06
17.5	3,600	2-22	do	2-26	do	3	8	120	56	132½	46 30	37 06	9 24	79.8	20.2	2.85	3.57	4.35
17.5	3,600	2-22	do	2-26	do	3	8	120	56	157	51 45	43 58	7 47	85.0	15.0	3.03	3.57	4.35
15.5	3,600	2-26	do	2-30	do	3	8	120	58	63	21 30	18 16	3 14	85.0	15.0	2.93	3.45	4.5
15.5	3,600	2-26	do	2-30	do	3	8	120	58	155½	51 45	45 05	6 40	87.1	12.9	3.00	3.45	4.5
15.5	3,600	2-26	do	2-30	do	3	8	120	58	120½	42 30	34 57	7 33	82.2	17.8	2.84	3.45	4.5
15.5	3,600	2-26	do	2-30	do	3	8	120	58	146½	47 45	42 29	5 16	89.0	11.0	3.07	3.45	4.5
15.5	3,600	2-26	do	2-30	do	3	8	120	58	109	35 30	31 37	3 53	89.1	10.9	3.07	3.45	4.5
15.5	3,660	2-26	do	2-30	do	3	8	120	58	118½	36 30	34 22	2 08	94.2	5.8	3.25	3.45	4.5
9.5	4,000	2-46	do	2-50	do	3	8	120	60	119	40 15	35 42	4 33	88.7	11.3	2.96	3.33	4.56
13.5	3,840	2-30	do	2-38	do	3	8	120	60	101	34 15	30 18	3 57	88.5	11.5	2.95	3.33	4.56

9.5	4,000	2-46	.....do..........	2-50	.....do.........	3	8	120	60	144	46 00	43 12	2 48	93.9	6.1	3.13	3.33	4.65
9.5	4,000	2-46	.....do..........	2-50	.....do.........	3	8	120	60	85	30 30	25 30	5 00	83.6	16.4	2.79	3.33	4.65
9.5	4,000	2-46	.....do..........	2-50	.....do.........	3	8	120	60	131	40 30	39 18	1 12	97.0	3.0	3.23	3.33	4.65
15.5	3,600	2-26	.....do..........	2-30	.....do.........	3	8	120	60	152½	49 45	45 45	4 00	92.0	8.0	3.07	3.33	4.65
9.5	4,000	2-46	.....do..........	2-50	.....do.........	3	8	120	60	166	51 45	49 48	1 57	96.2	3.8	3.21	3.33	4.65
13.5	3,840	2-30	.....do..........	2-38	.....do.........	3	8	120	60	159	51 45	47 42	4 03	91.3	8.7	3.07	3.33	4.65
11.4	4,080	2/40	.....do..........	1/24	.....do.........	1	8	114	62	117	49 15	38 11	11 04	77.5	22.5	2.38	3.06	4.29
11.5	4,080	2/40	.....do..........	1/24	.....do.........	1	8	114	62	116¼	47 45	38 01	9 44	79.6	20.4	2.44	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do.........	1	8	132	62	127¾	45 15	36 00	9 15	79.6	20.4	2.82	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do.........	1	8	132	62	95½	45 30	26 55	18 20	59.1	40.9	2.10	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do.........	1	8	114	62	90	46 15	29 22	16 53	63.5	36.5	1.95	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do.........	1	8	114	62	92	49 15	30 01	19 14	61.0	39.0	1.87	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do.........	1	8	132	62	84½	49 15	23 49	25 26	48.3	51.7	1.72	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do.........	1	8	114	62	84	43 00	27 25	15 35	63.7	36.3	1.95	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do.........	1	8	132	62	111½	43 00	31 25	11 35	73.1	26.9	2.59	3.55	3.74
11.4	4,080	2/40	.....do..........	1/24	.....do.........	1	8	132	62	268	97 30	75 32	21 58	77.5	22.5	2.84	3.55	3.74
11.4	4,080	2/40	.....do..........	1/24	.....do.........	1	8	132	62	123	48 45	34 40	14 05	71.1	28.9	2.52	3.55	3.74
11.3	4,080	2/40	.....do..........	1/24	.....do.........	1	8	132	62	212¼	76 00	59 53	16 07	78.8	21.2	2.92	3.55	3.74
11.3	4,080	2/40	.....do..........	1/24	.....do.........	1	8	132	62	131½	47 45	37 04	10 41	77.6	22.4	2.75	3.55	3.74
11.2	4,080	2/40	.....do..........	1/24	.....do.........	1	8	132	62	154	48 45	43 24	5 21	89.0	11.0	3.16	3.55	3.74
11.4	4,080	2/40	.....do..........	1/24	.....do.........	1	8	132	62	298¾	95 30	84 11	11 19	88.2	11.8	3.08	3.55	3.74
13.4	4,140	2/40	.....do..........	2/40	.....do.........	3	8	118	62	112¼	48 45	35 28	13 17	72.8	27.2	2.31	3.17	4.29
16.0	4,140	2/34	.....do..........	1/15	.....do.........	3	8	118	62	66¾	32 15	20 58	11 17	65.0	35.0	2.06	3.17	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do.........	3	8	118	62	95¾	38 00	30 07	7 53	79.2	20.8	2.51	3.17	4.29
13.4	4,140	2/40	.....do..........	2/40	.....do.........	3	8	118	62	54¼	21 30	17 06	4 24	79.5	20.5	2.52	3.17	4.29
11.3	4,080	2/40	.....do..........	1/24	.....do.........	3	8	120	62	110¾	48 00	34 20	13 40	71.5	28.5	2.31	3.23	4.29
11.6	4,500	2/45	.....do..........	2/45	.....do.........	3	8	118	62	102	43 45	32 10	11 35	73.5	26.5	2.33	3.17	4.29
16.0	4,140	2/34	.....do..........	1/15	.....do.........	3	8	118	62	112	48 45	35 19	13 26	72.4	27.6	2.30	3.17	4.29
11.4	4,500	2/45	.....do..........	2/45	.....do.........	3	8	118	62	109¼	45 00	34 31	10 29	76.7	23.3	2.43	3.17	4.29
16.0	4,140	2/34	.....do..........	1/15	.....do.........	3	8	118	62	112½	48 00	35 28	12 32	73.9	26.1	2.34	3.17	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do.........	3	8	118	62	121	48 30	38 09	10 21	78.7	21.3	2.49	3.17	4.29
15.5	4,140	2/34	.....do..........	1/15	.....do.........	3	8	110	62	93	38 15	31 27	6 48	82.2	17.8	2.43	2.96	4.29
15.8	4,140	2/34	.....do..........	1/15	.....do.........	3	8	120	62	110	48 15	34 06	14 09	70.7	29.3	2.28	3.23	4.29
11.1	4,080	2/40	.....do..........	1/24	.....do.........	3	8	120	62	200½	98 30	62 10	36 20	63.1	36.9	2.18	3.23	4.29
11.1	4,080	2/40	.....do..........	1/24	.....do.........	3	8	120	62	112	46 15	34 43	11 32	75.1	24.9	2.42	3.23	4.29
11.3	4,080	2/40	.....do..........	1/24	.....do.........	3	8	120	62	106	49 15	32 52	16 23	66.7	33.3	2.15	3.23	4.29
11.3	4,080	2/40	.....do..........	1/24	.....do.........	3	8	120	62	252¼	98 30	78 12	20 18	79.4	20.6	2.42	3.23	3.74
11.2	4,080	2/40	.....do..........	1/24	.....do.........	1	8	120	62	137	49 15	42 28	6 47	86.2	13.8	2.78	3.23	3.74
16.3	4,140	2/32	.....do..........	2/32	.....do.........	3	8	108	64	115¼	49 15	40 59	8 16	83.2	16.8	2.34	2.81	4.4
16.2	4,140	2/32	.....do..........	2/32	.....do.........	3	8	108	64	118½	49 15	42 08	7 07	85.6	14.4	2.42	2.81	4.4
16.3	4,140	2/32	.....do..........	2/32	.....do.........	3	8	108	64	97	47 30	34 29	13 01	72.6	27.4	2.04	2.81	4.4
16.2	4,140	2/32	.....do..........	2/32	.....do.........	3	8	108	64	87¼	34 30	31 01	3 29	89.9	10.1	2.53	2.81	4.4
16.0	4,140	2/32	.....do..........	2/32	.....do.........	3	8	106	64	120½	49 15	43 39	5 36	88.6	11.4	2.45	2.76	4.4
16.4	4,140	2/32	.....do..........	2/32	.....do.........	3	8	106	64	23	10 15	8 20	1 55	81.3	18.7	2.24	2.76	4.4
16.6	4,140	2/32	.....do..........	2/32	.....do.........	3	8	106	64	82¾	46 30	29 59	16 31	64.5	35.5	1.78	2.76	4.4
15.8	4,140	2/32	.....do..........	2/32	.....do.........	3	8	106	64	37½	21 30	13 35	7 55	63.2	36.8	1.74	2.76	4.18
16.1	4,140	2/32	.....do..........	2/32	.....do.........	3	8	106	64	80½	33 15	29 10	4 05	87.7	12.3	2.42	2.76	4.4
16.4	4,140	2/32	.....do..........	2/32	.....do.........	3	8	106	64	116	49 15	42 01	7 14	85.3	14.7	2.36	2.76	4.4
16.3	4,140	2/32	.....do..........	2/32	.....do.........	3	8	106	64	65¾	29 15	23 49	5 26	81.4	18.6	2.25	2.76	4.4
16.4	4,140	2/32	.....do..........	2/32	.....do.........	3	8	106	64	159	72 30	57 36	14 54	79.4	20.6	2.19	2.76	4.4
16.4	4,140	2/32	.....do..........	2/32	.....do.........	3	8	110	64	102	49 15	35 37	13 38	72.3	27.7	2.07	2.86	4.4
11.6	4,032	2/40	.....do..........	1/24	.....do.........	3	8	112	64	74	41 15	25 22	15 53	61.5	38.5	1.79	2.92	4.95

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
16.4	4,140	2/32	Worsted	2/32	Worsted	2	8	118	64	102	48 45	33 11	15 34	68.1	31.9	2.09	3.07	4.4
16.3	4,140	2/32	do	2/32	do	3	8	118	64	119½	48 30	38 44	9 46	79.9	20.1	2.45	3.07	4.4
16.2	4,140	2/32	do	2/32	do	3	8	118	64	218¼	93 30	71 07	22 23	76.1	23.9	2.36	3.07	4.4
16.2	4,140	2/32	do	2/32	do	3	8	118	64	114¼	46 30	37 16	9 14	80.1	19.9	2.46	3.07	4.4
16.2	4,140	2/32	do	2/32	do	3	8	110	64	92¼	44 15	32 12	12 03	72.8	27.2	2.08	2.86	4.4
16.2	4,140	2/32	do	2/32	do	3	8	110	64	110	48 45	38 24	10 21	78.8	21.2	2.26	2.86	4.4
16.0	4,140	2/32	do	2/32	do	3	8	110	64	161½	77 15	56 23	20 52	73.0	27.0	2.09	2.86	4.4
14.4	4,140	2/32	do	2/42	do	3	8	110	64	122	64 30	42 35	21 55	66.0	34.0	1.89	2.86	4.4
16.0	4,140	2/32	do	2/32	do	3	8	110	64	217¾	95 30	76 01	19 29	79.6	20.4	2.42	2.86	4.4
16.3	4,140	2/32	do	2/32	do	3	8	118	64	197	87 00	64 07	22 53	73.7	26.3	2.15	3.07	4.4
16.2	4,140	2/32	do	2/32	do	3	8	118	64	201½	96 00	65 34	30 26	68.3	31.7	2.10	3.07	4.4
16.2	4,140	2/32	do	2/32	do	3	8	118	64	90	47 45	29 17	18 28	61.3	38.7	1.88	3.07	4.4
16.0	4,140	2/32	do	2/32	do	3	8	118	64	63½	29 00	20 40	8 20	71.2	28.8	2.19	3.07	4.4
11.2	4,140	2/32	do	2/32	do	3	8	118	64	118	44 15	38 24	5 51	86.8	13.2	2.67	3.07	4.4
16.2	4,140	2/32	do	2/52	do	3	8	118	64	116¼	48 30	37 50	10 40	78.0	22.0	2.40	3.07	4.4
16.1	4,140	2/32	do	2/32	do	3	8	120	64	107	48 15	34 14	14 01	71.0	29.0	2.22	3.13	4.4
16.2	4,140	2/32	do	2/32	do	3	8	120	64	54	23 00	17 17	5 43	75.1	24.9	2.35	3.13	4.4
11.2	4,080	2/40	do	1/24	do	3	8	120	64	115½	46 15	36 58	9 17	79.9	20.1	2.50	3.13	4.4
18.0	4,320	2/28	do	2/32	do	3	8	112	66	51	26 00	18 02	7 58	69.3	30.7	1.96	2.83	4.51
13.0	4,320	2/40	do	2/40	do	3	8	118	66	70	30 30	23 29	7 01	77.0	23.0	2.30	2.98	4.51
18.5	4,320	2/32	do	2/28	do	3	8	108	68	44¼	18 30	16 49	1 41	90.9	9.1	2.39	2.65	4.73
17.0	4,320	2/32	do	2/34	do	3	8	106	68	76	49 15	29 15	20 00	59.4	40.6	1.54	2.6	4.73
13.6	4,320	2/45	do	2/40	do	3	8	106	68	115¼	49 15	44 22	4 53	90.1	9.9	2.34	2.6	4.73
13.8	4,320	2/45	do	2/40	do	3	8	110	68	97	49 15	35 59	13 16	73.1	26.9	1.97	2.7	4.73
14.0	4,320	2/40	do	2/40	do	3	8	110	68	68¼	40 30	25 25	15 05	62.7	37.3	1.69	2.7	4.73
13.8	4,320	2/40	do	2/40	do	3	8	118	68	102¼	42 15	35 21	6 54	83.7	16.3	2.42	2.80	4.73
13.8	4,320	2/40	do	2/40	do	3	8	118	68	121	47 45	41 50	5 10	89.0	11.0	2.57	2.80	4.73

10.7	4,400	2/52	do	2/52	do	3	8	110	72	84½	42 15	33 11	9 04	78.6	21.4	2.00	2.55	4.95
12.2	4,400	2/45	do	2/45	do	3	8	118	72	73½	36 30	26 49	9 41	73.5	26.5	2.01	2.73	4.95
6.6	2,800	2/36	do	1/30	do	1	4	120	46	88	45 50	20 14	25 36	44.1	55.9	1.92	4.35	2.75
6.6	2,800	2/36	do	1/30	do	1	4	120	46	162½	45 50	37 23	8 27	81.6	18.4	3.55	4.35	2.74
6.6	2,800	2/36	do	1/30	do	1	4	120	46	147½	45 50	33 56	11 54	74.0	26.0	3.22	4.35	2.54
6.6	2,800	2/36	do	1/30	do	1	4	120	46	173½	45 50	39 55	5 55	87.1	12.9	3.79	4.35	2.55
6.6	2,800	2/36	do	1/30	do	1	4	120	46	161	45 50	37 02	8 48	80.8	19.2	3.51	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	148	45 50	34 02	11 48	74.3	25.7	3.23	4.35	2.54
6.6	2,800	2/36	do	1/30	do	1	4	120	46	148½	45 50	34 10	11 40	74.5	25.5	3.24	4.35	2.88
6.6	2,800	2/36	do	1/30	do	1	4	120	46	140½	45 50	32 19	13 31	70.5	29.5	3.07	4.35	2.87
6.6	2,800	2/36	do	1/30	do	1	4	120	46	168	45 50	38 38	7 12	84.3	15.7	3.67	4.35	2.88
6.6	2,800	2/36	do	1/30	do	1	4	120	46	162	45 50	37 16	8 34	81.3	18.7	3.53	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	127½	45 50	29 20	16 30	64.0	36.0	2.78	4.35	2.85
6.6	2.800	2/36	do	1/30	do	1	4	120	46	132	45 50	30 22	15 28	66.3	33.7	2.88	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	142½	45 50	32 47	13 03	71.5	28.5	3.11	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	131½	45 50	30 15	15 35	66.0	34.0	2.87	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	136½	45 50	31 24	14 26	68.5	31.5	2.98	4.35	3.0
14.49	3,398	2-24	do	1-18	do	2	8	120	52	57½	19 50	14 57	4 53	75.4	24.6	2.90	3.84	3.9
14.49	3,398	2-24	do	1-18	do	2	8	120	52	142	55 10	36 55	18 15	66.9	33.1	2.57	3.85	3.9
12.93	4,224	2-40	do	2-40	do	2	8	120	60	156½	55 10	45 53	8 17	85.0	15.0	2.83	3.33	4.9
12.50	4,080	2-40	do	2-40	do	2	8	120	60	75½	41 20	22 44	18 36	55.0	45.0	1.83	3.33	4.3
12.77	4,080	2-40	do	2-40	do	2	6	120	62	88	37 00	27 17	9 43	73.7	26.3	2.38	3.23	4.3
12.66	4,476	2-40	do	2-44	do	2	8	120	62	84	53 10	26 02	27 08	49.0	51.0	1.58	3.23	4.2
12.77	4,080	2-40	do	2-40	do	2	8	120	62	114½	47 40	35 25	12 15	74.3	25.7	2.40	3.23	4.3
13.59	4,320	2-40	do	1-20	do	2	8	120	68	84½	54 00	28 39	25 21	53.1	46.9	1.56	2.94	4.8
13.12	4,664	2-45	do	2-45	do	2	8	120	72	80½	50 50	28 53	21 57	56.8	43.2	1.58	2.78	5.3
13.50	4,948	2-45	do	2-45	do	2	8	120	72	71½	48 40	25 50	22 50	53.1	46.9	1.47	2.78	5.3
13.12	4,664	2-45	do	2-45	do	2	8	120	72	23	11 30	8 17	3 13	72.0	28.0	2.00	2.78	5.3
9.6	2,963	2-30	do	1-26	do	1	8	126	46	109	34 15	23 53	10 22	69.7	30.3	3.18	4.57	3.41
8.6	2,800	2-36	do	1-26	do	1	4	126	46	144	34 15	31 32	2 43	92.1	7.9	4.20	4.57	2.6
9.2	2,963	2-30	do	1-26	do	1	4	126	46	60	20 45	13 08	7 37	63.3	36.7	2.89	4.57	2.44
9.6	2,963	2-30	do	1-26	do	1	8	120	46	117	34 15	26 55	7 20	78.6	21.4	3.42	4.35	2.78
10.2	3,555	2-36	do	1-26	do	1	4	140	46	54½	17 15	10 41	6 34	61.9	38.1	3.14	5.07	2.95
10.0	3,128	2-30	do	1-26	do	1	8	124	47	66	25 15	15 01	10 14	59.5	40.5	2.61	4.40	2.94
10.3	3,128	2-30	do	1-24	do	1	8	120	47	113½	34 15	26 40	7 35	77.9	22.1	3.31	4.26	2.86
15.6	3,348	2-21	do	1-16	do	1	12	122	47	70½	24 30	16 21	8 09	66.7	33.3	2.89	4.33	3.67
8.8	2,800	2-36	do	1-24	do	1	4	122	48	69½	29 00	16 26	12 34	56.7	43.3	2.40	4.24	2.95
11.3	3,272	2-30	do	1-26	do	1	8	124	50	70	31 15	16 56	14 19	54.2	45.8	2.24	4.13	3.21
11.4	3,360	2-36	do	1-18	do	1	6	122	50	123½	34 15	30 22	3 53	88.7	11.3	3.61	4.07	2.84
9.0	3,098	2-36	do	1-26	do	1	4	130	52	49	31 15	11 46	19 29	37.7	62.3	1.57	4.17	2.7
10.6	3,611	2-36	do	1-25	do	1	8	128	55	60½	34 15	15 40	18 35	45.7	54.3	1.77	3.88	3.05
10.2	3,555	2-36	do	1-26	do	1	4	136	55	34½	13 00	8 19	4 41	64.0	36.0	2.63	4.12	2.95
10.4	3,611	2-36	do	1-25	do	1	8	124	55	73½	24 30	19 34	4 56	79.9	20.1	3.00	3.76	3.33
11.0	2,611	2-36	do	1-25	do	1	8	120	55	86½	29 30	23 47	5 43	80.6	19.4	2.93	3.64	3.33
10.6	3,528	2-36	do	1-26	do	1	8	116	55	80½	30 15	22 54	7 21	75.7	24.3	2.66	3.52	3.33
10.0	3,611	2-36	do	1-25	do	1	8	120	55	88	34 15	24 12	10 03	70.7	29.3	2.57	3.64	3.33
12.0	3,360	2-36	do	1-18	do	1	6	122	56	40½	14 45	11 05	3 40	75.1	24.9	2.73	3.63	3.56
10.8	3,666	2-36	do	1-29	do	1	8	123	60	76	29 45	22 14	7 31	74.7	25.3	2.55	3.42	3.32
10.4	3,666	2-36	do	1-29	do	1	8	117	60	75½	34 15	23 09	11 06	67.6	32.4	2.20	3.25	3.63
10.4	3,666	2-36	do	1-29	do	1	8	120	60	127½	58 30	38 15	20 15	65.4	34.6	2.18	3.33	3.32
10.3	3,666	2-36	do	1-29	do	1	8	120	60	44½	20 45	13 26	7 19	64.7	35.3	2.89	3.33	3.63
10.8	3,666	2-36	do	1-29	do	1	8	120	60	72	34 15	21 36	12 39	63.1	36.9	2.10	3.33	3.63

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
11.0	4,125	2-40	Worsted	1-29	Worsted	1	8	122	62	79¼	34 15	24 10	10 05	70.6	29.4	2.31	3.28	3.87
9.0	4,460	2-52	do	1-40	do	2	8	124	72	39	20 45	13 35	7 10	65.5	34.5	1.88	2.87	4.21
9.4	4,460	2-52	do	1-40	do	1	8	126	72	66	34 15	22 37	11 38	66.0	34.0	1.93	2.91	4.21
9.4	4,460	2-52	do	1-40	do	1	8	124	72	68¼	34 15	23 47	10 28	69.4	30.6	1.99	2.87	4.21
9.4	4,460	2-52	do	1-40	do	1	8	126	72	76¾	34 15	26 19	7 56	76.8	23.2	2.24	2.91	4.21
8.8	4,460	2-52	do	1-40	do	2	8	124	72	64	23 15	22 18	57	95.9	4.1	2.75	2.87	4.21
9.2	4,460	2-52	do	1-40	do	2	8	120	72	76	34 15	27 22	6 53	79.9	20.1	2.22	2.78	4.21
9.2	4,460	2-52	do	1-40	do	2	8	122	72	65	34 15	23 01	11 14	67.2	32.8	1.90	2.82	3.97
15.2	3,840	2/28	do	1/18	do	3	8	108	56	88	37 00	27 23	9 37	74.0	26.0	2.38	3.21	3.96
15.0	3,840	2/28	do	1/18	do	3	8	106	56	68¼	47 15	21 43	25 32	46.0	54.0	1.44	3.15	3.96
15.0	3,840	2/28	do	1/18	do	3	8	110	56	112	42 30	34 13	8 17	80.4	19.6	2.64	3.27	3.96
14.9	3,840	2/28	do	1/18	do	3	8	118	56	120	47 45	34 10	13 35	71.6	28.4	2.51	3.51	3.96
15.0	3,840	2/28	do	1/18	do	3	8	118	56	133¼	45 30	38 01	7 29	83.5	16.5	2.93	3.51	3.96
10.6	4,080	2/45	do	2/50	do	3	8	108	60	79¼	38 30	26 30	12 00	68.8	31.2	2.06	3.00	4.18
12.2	4,080	2/45	do	2/50	do	3	8	108	60	67	46 15	22 20	23 55	48.3	51.7	1.45	3.00	4.18
12.4	4,080	2/40	do	2/40	do	3	8	108	60	106	47 15	35 20	11 55	74.8	25.2	2.24	3.00	4.18
14.8	4,140	2/33	do	2/40	do	3	8	106	60	23½	11 30	7 59	3 31	69.4	30.6	2.04	2.94	4.18
9.9	3,840	2/40	do	1/28	do	3	8	106	60	115¾	42 00	39 19	2 41	93.6	6.4	2.76	2.94	4.18
10.4	3,880	2/40	do	1/28	do	1	8	114	60	119¾	49 15	37 44	11 31	76.6	23.4	2.43	3.17	4.18
10.3	3,840	2/42	do	1/28	do	1	8	114	60	132½	49 15	41 50	7 25	85.0	15.0	2.69	3.17	4.18
10.6	3,880	2/40	do	1/24	do	1	8	114	60	94½	49 15	29 50	19 25	60.6	39.4	1.92	3.17	4.18
11.5	3,880	2/40	do	1/28	do	1	8	132	60	122	49 15	33 16	15 59	67.6	32.4	2.48	3.67	3.63
10.3	3,880	2/40	do	1/28	do	1	8	132	60	138	48 15	37 38	10 37	78.0	22.0	2.86	3.77	3.63
10.4	3,880	2/40	do	1/28	do	1	8	132	60	100	47 45	27 16	20 29	57.1	42.9	2.09	3.67	3.63
10.4	3,880	2/40	do	1/28	do	1	8	132	60	152½	48 45	41 35	7 10	85.3	14.7	3.13	3.67	3.63

14.9	4,140	2/32	.....do..........	2/40	.....do..........	3	8	118	60	108	43 30	32 57	10 33	75.7	24.3	2.48	3.28	4.18
14.9	4,140	2/32	.....do..........	2/40	.....do..........	3	8	118	60	60½	29 00	18 28	10 32	63.7	36.3	2.09	3.28	4.18
11.1	4,500	2/45	.....do..........	2/52	.....do..........	3	8	118	60	108	45 30	32 57	12 33	72.4	27.6	2.37	3.28	4.18
11.0	4,500	2/45	.....do..........	2/52	.....do..........	3	8	120	60	141½	44 00	42 27	1 33	96.5	3.5	3.22	3.33	4.18
10.4	3,880	2/40	.....do..........	1/28	.....do..........	3	8	120	60	111	49 15	33 18	15 57	67.6	32.4	2.25	3.33	4.18
10.2	3,880	2/40	.....do..........	1/28	.....do..........	1	8	120	60	136½	49 15	40 57	8 18	83.1	16.9	2.77	3.33	3.63
11.6	4,080	2/40	.....do..........	1/24	.....do..........	3	8	108	62	102	49 15	35 08	14 07	71.3	28.7	2.07	2.90	4.29
12.4	4,080	2/40	.....do..........	2/40	.....do..........	3	8	108	62	105½	49 15	39 20	9 55	79.9	20.1	2.14	2.90	4.29
11.5	4,080	2/40	.....do..........	1/24	.....do..........	3	8	108	62	103½	49 15	35 44	13 31	72.3	27.7	2.11	2.90	4.29
15.8	4,140	2/34	.....do..........	1/15	.....do..........	3	8	106	62	68	43 45	23 52	19 53	54.6	45.4	1.55	2.85	4.29
13.2	4,140	2/40	.....do..........	2/40	.....do..........	1	8	114	62	109½	43 45	35 44	8 01	81.7	18.3	2.50	3.07	4.29
11.6	4,080	2/40	.....do..........	1/24	.....do..........	1	8	134	62	129½	46 00	35 57	10 03	78.2	21.8	2.82	3.60	3.74
11.6	4,080	2/40	.....do..........	1/24	.....do..........	1	8	132	62	117½	49 15	33 02	16 13	67.1	32.9	2.38	3.55	3.74
11.6	4,080	2/40	.....do..........	1/24	.....do..........	1	8	114	62	77	33 30	25 08	8 22	75.0	25.0	2.30	3.06	4.29
11.6	4,080	2/40	.....do..........	1/24	.....do..........	1	8	132	62	84	32 30	23 40	8 50	72.8	27.2	2.58	3.55	3.74
11.6	4,080	2/40	.....do..........	1/24	.....do..........	1	8	132	62	146	49 15	41 09	8 06	83.6	16.4	2.96	3.55	3.74
11.6	4,080	2/40	.....do..........	1/24	.....do..........	1	8	132	62	127	41 30	35 47	5 43	86 2	13.8	3.06	3.54	3.74
11.6	4,080	2/40	.....do..........	1/24	.....do..........	1	8	132	62	111	49 15	31 17	17 58	63.5	36.5	2.25	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do..........	1	8	114	62	79	43 00	25 47	17 13	60.0	40.0	1.84	3.06	4.29
11.6	4,080	2/40	.....do..........	1/24	.....do..........	1	8	132	62	123½	43 00	34 48	8 12	80.9	19.1	2.87	3.55	3.74
11.6	4,080	2/40	.....do..........	1/24	.....do..........	1	8	132	62	156½	49 15	44 02	5 13	89.4	10.6	3.17	3.55	3.74
11.4	4,080	2/40	.....do..........	1/24	.....do..........	1	8	114	62	123½	49 00	40 18	8 42	82.2	17.8	2.52	3.06	4.29
11 5	4,080	2/40	.....do..........	1/24	.....do..........	1	8	132	62	127½	49 15	35 56	13 19	73.0	27 0	2.59	3.55	3.74
11.2	3,840	2/45	.....do..........	1/24	.....do..........	3	8	108	56	88½	49 15	27 28	21 47	55.8	44.2	1.79	3.21	3.96
10.4	4,000	2/40	.....do..........	1/28	.....do..........	1	8	114	56	114½	41 30	33 45	7 45	81.3	18.7	2.76	3.39	3.96
10.4	4,000	2/40	.....do..........	1/28	.....do..........	1	8	114	56	111	48 15	32 43	15 32	67 8	32.2	2.30	3.39	3.96
12.0	4,080	2/45	.....do..........	2/44	.....do..........	3	8	108	58	101½	42 15	32 47	9 28	77 6	22.4	2.41	3.10	4.07
16.5	4,080	2/28	.....do..........	1/16	.....do..........	3	8	108	58	84	18 45	10 58	7 47	58.5	41.5	1.81	3.10	4.07
15.6	4,140	2/32	.....do..........	2/34	.....do..........	3	8	106	58	45½	17 30	14 56	2 34	85.3	14.7	2.60	3.06	4.07
15.1	4,140	2/32	.....do..........	2/34	.....do..........	3	8	112	58	91½	38 45	28 26	10 19	73.4	26.6	2.36	2.22	4.07
15.5	4,140	2/32	.....do..........	2/34	.....do..........	3	8	110	58	96½	44 30	30 32	13 58	68.6	31.4	2.17	3.16	4.07
15.3	4,140	2/32	.....do..........	2/34	.....do..........	3	8	110	58	82	38 15	25 56	12 19	67.8	32.2	2.14	3.16	4.07
15.4	4,140	2/32	.....do..........	2/34	.....do..........	3	8	110	58	199½	80 30	63 07	17 23	78.4	21.6	2.53	3.16	4.07
15.5	4,140	2/32	.....do..........	2/34	.....do..........	3	8	118	58	195½	81 30	57 44	23 46	70.8	29.2	2.48	3.39	4.07
15.2	4,140	2/32	.....do..........	2/34	.....do..........	3	8	118	58	112	48 00	33 02	14 58	68.8	31.2	2.33	3.39	4.07
15.5	4,140	2/32	.....do..........	2/34	.....do..........	3	8	118	58	95½	37 45	28 10	9 35	74.6	25.4	2.53	3.39	4.07
10.2	4,080	2/45	.....do..........	1/28	.....do..........	3	8	118	58	121½	47 15	35 46	11 29	75.7	24.3	2.57	3.39	4.07
15.2	4,140	2/32	.....do..........	2/34	.....do..........	3	8	118	58	58½	29 45	17 15	12 30	58.0	42.0	1.97	3.39	4.07
15.6	4,140	2/32	.....do..........	2/34	.....do..........	3	8	118	58	22	16 00	6 29	9 31	40.6	59.4	1.38	3.39	4.07
15.5	4,140	2/32	.....do..........	2/34	.....do..........	3	8	118	58	134½	43 45	39 40	4 05	90.7	9.3	3.07	3.39	4.07
15.3	4,140	2/32	.....do..........	2/34	.....do..........	3	8	118	58	138½	47 30	40 46	6 44	85.8	14.2	2.91	3.39	4.07
15.6	4,140	2/32	.....do..........	2/34	.....do..........	3	8	120	58	165	72 30	47 51	24 39	66.0	34.0	2.28	3.45	4.07
11.8	4,048	2/40	.....do..........	1/24	.....do..........	3	12	106	62	81	39 15	28 26	10 49	72.4	27.6	2.06	2.85	4.95
12.4	4,320	2/42	.....do..........	2/42	.....do..........	3	8	106	62	21	12 45	7 22	5 23	57.8	42.2	1.65	2.85	4.29
12.9	4,320	2/42	.....do..........	2/42	.....do..........	3	8	106	62	82½	44 30	26 05	18 25	58.6	41.4	1.86	3.17	4.29
12.4	4,320	2/42	.....do..........	2/42	.....do..........	3	8	120	62	103½	45 15	32 05	13 10	70.9	29.1	2.29	3.22	4.29
10.68	2,836	2-30	.....do..........	1-18	.....do..........	2	4	125	48	139½	55 10	32 05	23 05	58.2	41.8	2.52	4.34	3.1
10.68	2,836	2-30	.....do..........	1-18	.....do..........	2	4	125	48	139½	55 10	32 12	22 58	58.4	41.6	2.53	4.34	3.1
10.68	2,836	2-30	.....do..........	1-18	.....do..........	2	4	125	48	37½	10 10	8 35	1 35	84.4	15.6	3.66	4.34	3.1
10.68	2,836	2-30	.....do..........	1-18	.....do..........	2	4	125	48	71½	32 30	16 25	16 05	50.5	49.5	2.19	4.34	3.1
10.68	2,836	2-30	.....do..........	1-18	.....do..........	2	4	125	48	159	55 10	36 38	18 32	66.4	33.6	2.88	4.34	3.1
10.68	2,836	2-30	.....do..........	1-18	.....do..........	2	4	125	48	17	10 10	3 55	6 15	38.5	61.5	1.67	4.34	3.1
10.68	2,836	2-30	.....do..........	1-18	.....do..........	2	4	125	48	126	55 10	29 02	26 08	52.6	47.4	2.28	4.34	3.1

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
9.70	3,042	2-40	Worsted	2-40	Worsted	2	6	120	50	22	7 10	5 30	1 40	76.7	23.3	3.07	4.00	3.4
7.44	2,572	1-18	do	1-24	do	2	4	125	50	24¾	14 30	5 56	8 34	40.9	59.1	1.71	4.17	3.1
7.44	2,572	1-18	do	1-24	do	2	4	125	50	151¾	55 10	36 25	18 45	66.0	34.0	2.75	4.17	3.1
7.44	2,572	1-18	do	1-24	do	2	4	125	50	111	50 10	26 38	23 32	53.1	46.9	2.21	4.17	3.1
10.90	4,080	2-40	do	1-24	do	2	8	120	60	110¾	40 40	33 14	7 26	81.7	18.3	2.72	3.33	4.2
12.50	4,080	2-40	do	2-40	do	2	8	120	60	133	55 00	39 54	15 06	72.5	27.5	2.42	3.33	4.3
16.01	3,398	2-21	do	1-16	do	2	8	120	60	64¾	27 20	19 26	7 54	71.1	28.9	2.37	3.33	3.8
12.66	4,476	2-40	do	2-44	do	2	6	120	60	136¼	55 10	40 53	14 17	74.1	25.9	2.47	3.33	4.2
9.86	3,528	2-36	do	1-30	do	2	8	120	62	100¾	52 40	31 10	21 30	59.2	40.8	1.91	3.23	4.1
17.0	3,700	24/2	do	10½/1	do	2	8	95	48	49	19 00	14 51	4 09	78.16	21.84	2.58	3.30	3.9
17.3	3,900	27/2	do	27/2	do	2	8	95	53	185	98 00	61 56	36 04	63.19	36.81	1.89	2.99	4.4
17.3	3,900	27/2	do	27/2	do	2	8	95	53	112	67 00	37 29	29 31	55.96	44.04	1.67	2.99	4.4
17.3	3,900	27/2	do	27/2	do	2	8	95	53	168	81 00	56 14	24 46	69.43	30.57	2.07	2.99	4.4
17.3	3.900	27/2	do	27/2	do	2	8	95	53	204	82 00	68 17	13 43	83.28	16.72	1.24	2.07	4.4
19.0	9,400	57/2	do	30/1	do	2	16	80	127	129	159 00	122 52	36 08	77.28	22.72	.81	1.05	16.4
13.0	3,300	30/1	do	10½/1	do	2	16	80	127	136	167 00	129 32	37 28	77.57	22.43	.81	1.05	5.2
19.0	9,400	57/2	do	30/1	do	2	16	80	127	133	163 00	126 41	36 19	77.22	22.78	.82	1.05	16.4
19.0	9,400	57/2	do	30/1	do	2	16	80	127	131	165 00	124 46	40 14	75.62	24.38	.79	1.05	24.0
14.1	3,400	28/2	do	28/2	do	2	8	95	47	159	52 00	47 12	4 48	90.77	9.23	1.43	1.95	6.2
14.1	3,400	28/2	do	28/2	do	2	8	95	47	263	93 00	74 04	18 56	83.95	16.05	1.52	1.98	3.9
14.1	3,400	28/2	do	28/2	do	2	8	95	47	259	97 00	76 53	20 07	79.26	20.74	2.67	3.37	3.9
14.1	3,400	25/1	do	25/1	do	2	8	95	47	310	123 00	92 01	30 59	74.81	25.19	2.52	3.37	3.9
14.1	3,400	28/2	do	28/2	do	2	8	95	47	101	44 00	29 59	14 01	68.14	31.86	2.30	3.37	3.9
14.1	3,400	28/2	do	28/2	do	2	8	95	47	49	17 00	14 33	2 27	85.59	14 41	2.88	3.37	3.9
14.1	3,400	28/2	do	28/2	do	2	8	95	47	241	93 00	71 32	21 28	76.92	23 08	2.59	3.37	3.9
11.2	3,800	37/2	do	37/2	do	2	8	95	50	464	183 00	146 31	36 29	80.07	19.93	2.54	3.17	4.1

11.4	3,700	40/2	.....do..........	40/2	.....do..........	2	8	95	50	385	155 00	121 35	33 25	78.44	21.56	2.48	3.17	4.2
12.6	4,250	20/1	.....do..........	20/1	.....do..........	2	8	95	57	50	30 00	18 00	12 00	60.00	40.00	1.15	2.06	4.7
12.6	4,250	20/1	.....do..........	20/1	.....do..........	2	8	95	57	275	124 00	99 00	25 00	79.84	20.16	1.32	2.06	4.7
12.6	4,250	20/1	.....do..........	20/1	.....do..........	2	8	95	57	96	43 00	34 34	8 26	80.37	19.63	2.23	2.78	4.7
12.8	4,250	20/1	.....do..........	20/1	.....do..........	2	8	95	57	265	133 00	95 24	37 36	71.73	28.27	1.99	2.78	4.8
12.8	4,250	20/1	.....do..........	20/1	.....do..........	2	8	95	57	189	82 00	68 02	13 58	82.98	17.02	2.30	2.78	4.8
12.8	4,250	20/1	.....do..........	20/1	.....do..........	2	8	95	57	261	113 00	93 58	19 02	83.15	16.85	2.31	2.78	4.8
12.6	4,250	20/1	.....do..........	20/1	.....do..........	2	8	95	57	57	24 00	20 31	3 29	85.50	14.50	2.38	2.78	4.7
12.6	4,250	20/1	.....do..........	20/1	.....do..........	2	8	95	57	97	42 00	34 55	7 05	83.14	16.86	2.31	2.78	4.7
12.9	4,300	40/2	.....do..........	40/2	.....do..........	2	8	95	61	150	71 00	57 47	13 13	81.39	18.61	2.11	2.59	5.1
11.9	4,500	45/2	.....do..........	45/2	.....do..........	2	8	95	61	51	41 00	19 39	21 21	47.93	52.07	1.51	2.14	5.1
12.9	4,300	40/2	.....do..........	40/2	.....do..........	2	8	95	61	180	81 00	69 21	11 39	85.62	14.38	1.21	1.93	5.1
12.9	4,300	40/2	.....do..........	40/2	.....do..........	2	8	95	61	112	51 00	43 09	7 51	84.61	15.39	2.15	2.47	5.1
11.9	4,500	45/2	.....do..........	45/2	.....do..........	2	8	95	61	50	27 00	19 16	7 44	71.33	28.67	1.98	2.59	5.1
11.9	4,500	45/2	.....do..........	45/2	.....do..........	2	8	95	61	211	103 00	81 17	21 43	78.92	21.08	2.05	2.60	5.1
11.9	4,500	45/2	.....do..........	45/2	.....do..........	2	8	95	61	162	100 00	62 25	37 35	62.41	37.59	1.62	2.60	5.1
12.9	4,300	40/2	.....do..........	40/2	.....do..........	2	8	95	61	123	61 00	47 23	13 37	77.69	22.31	2.02	2.60	5.1
12.9	4,300	40/2	.....do..........	40/2	.....do..........	2	8	80	61	43½	35 30	19 54	15 36	56.06	43.94	1.06	1.78	3.05
12.9	4,300	40/2	.....do..........	40/2	.....do..........	2	8	95	61	118	61 00	45 28	15 32	74.52	25.48	1.93	2.60	5.1
12.1	4,500	45/2	.....do..........	45/2	.....do..........	2	8	95	62	251	129 00	98 17	30 43	76.19	23.81	1.95	2.55	5.2
12.1	4,500	45/2	.....do..........	45/2	.....do..........	2	8	95	62	238	112 00	93 11	18 49	83.21	16.79	2.13	2.55	5.2
12.2	4,600	45/2	.....do..........	45/2	.....do..........	2	8	95	62	194	94 00	75 58	18 02	80.82	19.18	2.06	2.55	5.2
12.1	4,500	45/2	.....do..........	45/2	.....do..........	2	8	95	62	251	127 00	98 17	28 43	77.39	22.61	1.98	2.55	5.2
12.1	4,500	45/2	.....do..........	45/2	.....do..........	2	8	80	62	77	57 00	35 49	21 11	62.82	37.18	.97	1.78	7.1
11.2	4,750	25/1	.....do..........	25/1	.....do..........	2	8	95	65	329	160 00	135 04	24 56	84.41	15.59	2.06	2.44	5.4
11.2	4,750	25/1	.....do..........	25/1	.....do..........	2	8	95	65	255	122 00	104 41	17 19	85.80	14.20	2.09	2.44	5.4
11.2	4,750	25/1	.....do..........	25/1	.....do..........	2	8	95	65	263	156 00	107 58	48 02	69.21	30.79	1.69	2.44	5.4
11.2	4,750	25/1	.....do..........	25/1	.....do..........	2	8	95	65	286	156 00	117 25	38 35	75.26	24.74	1.83	2.44	5.4
11.2	4,750	25/1	.....do..........	25/1	.....do..........	2	8	95	65	209	104 00	85 48	18 12	82.50	17.50	2.01	2.44	5.4
11.2	4,750	25/1	.....do..........	25/1	.....do..........	2	8	95	65	294	149 00	120 41	28 19	81.00	19.00	1.97	2.44	5.4
11.5	5,500	57/2	.....do..........	57/2	.....do..........	2	8	95	72	22	16 00	10 00	6 00	62.50	37.50	1.38	2.20	6.0
11.5	5,500	57/2	.....do..........	57/2	.....do..........	2	8	95	72	65	37 00	29 34	7 26	79.89	20.11	2.09	2.44	6.0
16.9	7,896	2/40	.....do..........	30/1	.....do..........	2	16	113	64	105½	40 40	35 51	4 49	88.2	11.8	2.59	2.94	5.9
16.9	7,896	2/40	.....do..........	30/1	.....do..........	2	16	113	64	99½	40 40	33 49	6 51	83.2	16.8	2.45	2.94	5.9
13.8	5,520	2/40	.....do..........	25/1	.....do..........	3	11	106	68	89½	40 40	34 27	6 13	84.7	15.3	2.20	2.60	6.2
19.4	2,762	2/17	.....do..........	2/20	.....do..........	2	8	106	44	133½	40 40	33 15	7 25	81.8	18.2	3.28	4.02	3.7
19.4	2,762	2/17	.....do..........	2/20	.....do..........	2	8	106	44	69	39 50	35 41	4 09	89.6	10.4	2.81	4.02	3.7
19.4	2,762	2/17	.....do..........	2/20	.....do..........	2	8	113	44	74	20 20	17 17	3 03	85.0	15.0	3.04	4.28	3.7
19.4	2,762	2/17	.....do..........	2/20	.....do..........	2	8	106	44	157½	40 40	39 14	1 26	96.5	3.5	3.97	4.02	3.7
19.4	2,762	2/17	.....do..........	2/20	.....do..........	2	8	113	44	59	40 10	35 10	5 00	87.6	12.4	2.8	4.28	3.7
19.4	2,762	2/17	.....do..........	2/20	.....do..........	2	8	113	44	74½	20 20	17 25	2 55	85.7	14.3	3.7	4.28	3.7
21.6	3,360	2/20	.....do..........	2/19	.....do..........	2	8	106	54	69	40 10	33 19	6 51	82.9	17.1	2.61	3.27	4.5
21.6	3,360	2/20	.....do..........	2/19	.....do..........	2	8	106	54	117	40 40	35 46	4 54	88.0	12.0	2.88	3.27	4.5
19.6	3,864	2/28	.....do..........	3½	Woolen........	3	8	106	56	88	40 40	27 53	12 47	67.8	32.2	2.16	3.15	4.7
19.6	3,864	2/28	.....do..........	3½	.....do..........	2	8	113	56	73½	25 50	21 51	3 59	84.6	15.4	2.88	3.36	4.7
19.0	3,744	2/24	.....do..........	2/24	Worsted......	2	8	113	56	127	40 40	37 46	2 54	92.9	7.1	3.12	3.36	4.7
19.4	3,528	2/24	.....do..........	2/22	.....do.......	2	8	113	56	114	39 50	33 54	5 56	85.1	14.9	2.86	3.36	4.7
19.0	3,744	2/24	.....do..........	2/24	.....do..........	2	8	113	56	119	40 40	35 23	5 17	87.0	13.0	2.90	3.36	4.7
19.0	3,744	2/24	.....do..........	2/24	.....do..........	2	8	113	56	117	40 40	34 46	5 54	85.5	14.5	2.87	3.37	4.7
19.4	3,528	2/24	.....do..........	2/22	.....do..........	2	8	113	56	118	40 40	35 05	5 35	86.3	13.7	2.90	3.36	4.7
19.0	3,744	2/24	.....do..........	2/24	.....do..........	2	8	113	56	127	40 40	37 58	2 42	93.3	6.7	3.12	3.36	4.7
19.0	3,744	2/24	.....do..........	2/24	.....do..........	2	8	113	56	121½	40 40	36 08	4 32	88.8	11.2	2.99	3.36	4.7
19.0	3,744	2/24	.....do..........	2/24	.....do..........	2	8	113	56	125½	40 40	37 37	3 03	92.5	7.5	3.09	3.36	4.7

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
19.4	3,528	2/24	Worsted	2/22	Worsted	2	8	113	56	126½	39 20	30 52	8 28	78.5	21.5	3.22	3.36	4.7
19.0	3,744	2/24	do	2/24	do	2	8	113	56	128½	40 40	38 13	2 27	94.0	6.0	3.16	3.36	4.7
19.0	3,744	2/24	do	2/24	do	2	8	113	56	123½	40 40	36 43	3 57	90.3	9.7	3.04	3.36	4.7
19.0	3,744	2/24	do	2/24	do	2	8	113	56	17½	39 50	34 31	5 19	86.7	13.3	2.75	3.36	4.7
19.0	3,744	2/24	do	2/24	do	2	8	113	56	123½	40 40	36 43	3 57	90.3	9.7	3.04	3.36	4.7
19.4	3,528	2/24	do	2/22	do	2	8	113	56	119½	40 40	35 32	5 08	79.6	20.4	2.94	3.36	4.7
19.0	3,744	2/24	do	2/24	do	2	8	113	56	112½	40 40	33 27	7 13	82.3	17.7	2.8	3.36	4.7
19.0	3,744	2/24	do	2/24	do	2	8	113	56	122	40 40	36 17	4 23	89.2	10.8	3.0	3.36	4.7
19.0	3,744	2/24	do	2/24	do	2	8	113	56	119½	40 40	35 32	5 08	87.4	12.6	2.9	3.36	4.7
19.0	3,744	2/24	do	2/24	do	2	8	113	56	127	40 40	37 47	2 53	92.9	7.1	3.1	3.36	4.7
19.0	3,744	2/24	do	2/24	do	2	8	113	56	57½	20 20	17 05	3 15	84.1	15.9	2.8	3.36	4.7
19.0	3,744	2/24	do	2/24	do	2	8	113	56	42	14 50	12 29	2 21	84.2	15.8	2.8	3.36	4.7
15.2	3,864	2/32	do	1/15	do	1	8	140	58	42	40 10	31 17	8 53	81.7	18.3	2.94	3.64	4.5
15.2	3,864	2/32	do	1/15	do	2	8	113	58	118	40 40	36 20	4 20	89.4	10.6	2.90	3.25	4.9
17.1	3,864	2/28	do	2/28	do	1	8	140	60	87	40 10	31 58	8 12	79.6	20.4	3.04	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	133½	40 40	34 20	6 20	84.4	15.6	3.28	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	94	40 10	29 31	10 39	73.5	26.5	3.07	3.89	4.7
17.1	3,864	2/28	do	2/28	do	2	8	106	60	112½	40 40	38 13	2 27	94.0	6.0	2.77	2.94	5.0
17.1	3,864	2/28	do	2/28	do	1	8	140	60	140	40 40	36 00	4 40	88.5	11.5	3.44	3.89	4.7
13.5	3,744	2/32	do	1/20	do	1	8	113	60	107	40 10	34 05	6 05	84.9	15.1	2.66	3.14	5.0
17.1	3,864	2/28	do	2/28	do	1	8	140	60	137	40 40	35 14	5 26	86.6	13.4	3.41	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	143	40 40	36 46	3 54	90.4	9.6	3.52	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	139	40 40	35 44	4 56	87.9	12.1	3.42	3.89	4.7
17.1	3,864	2/28	do	2/28	do	2	8	113	60	120	40 40	38 14	2 26	94.0	6.0	2.95	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	111½	40 40	35 31	5 09	87.3	12.7	2.74	3.14	5.0
17.1	3,864	2/28	do	2/28	do	1	8	140	60	134	39 50	34 28	5 22	86.5	13.5	3.36	3.89	4.7

17.1	3,864	2/28	.....do..........	2/28	.....do..........	1	8	140	60	125½	39 40	32 16	7 24	81.3	18.7	3.16	3.89	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	1	8	140	60	144½	40 40	37 10	3 30	91.4	8,6	3.55	3.89	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	1	8	140	60	147	40 40	30 48	9 52	75.7	24.3	3.61	3.89	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	113	60	105	39 40	33 27	6 13	84.3	15.7	2.65	3.14	5.0
17.1	3,864	2/28	.....do..........	2/28	.....do..........	1	8	140	60	145	40 10	37 17	2 53	92.8	7.2	3.61	3.89	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	1	8	140	60	84½	40 40	21 44	18 56	53.4	46.6	2.08	3.89	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	126	60	130½	40 40	37 17	3 23	91.7	8.3	3.21	3.50	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	1	8	140	60	130½	40 10	23 38	16 32	58.8	41.2	3.4	3.89	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	1	8	140	60	142½	40 40	36 38	4 02	90.1	9.9	3.6	3.89	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	126	60	119	40 10	34 00	6 10	84.6	15.4	3.0	3.50	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	126	60	122	40 10	34 52	5 18	86.8	13.2	3.0	3.50	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	113	60	107½	40 40	34 15	6 25	84.2	15.8	2.6	3.14	5.0
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	126	60	116	40 10	33 08	7 02	82.5	17.5	2.9	3.50	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	126	60	122	40 40	34 52	5 48	85.7	14.3	3.0	3.50	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	126	60	132	40 40	37 43	2 57	92.7	7.3	3.2	3.50	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	126	60	69½	38 40	35 34	3 06	92.0	8.0	3.22	3.50	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	126	60	126	40 40	36 00	4 40	88.5	11.5	3.1	3.50	4.7
17.1	3,864	2/28	.....do..........	2/28	.....do..........	2	8	113	60	34½	12 20	10 59	1 21	89.1	10.9	2.8	3.14	5.0
17.1	3,864	2/28	.....do..........	2/28	.....do..........	1	8	140	60	40½	12 20	10 25	1 55	84.5	15.5	3.3	3.89	4.7
15.1	4,480	2/36	.....do..........	2/34	.....do..........	1	8	140	62	130½	40 10	34 23	5 47	85.6	14.4	3.25	3.76	4.8
13.1	4,480	2/36	.....do..........	2/34	.....do..........	1	8	140	62	106	40 40	28 10	12 30	69.3	30.7	2.61	3.76	4.8
15.1	4,480	2/36	.....do..........	2/34	.....do..........	2	8	106	62	103½	40 40	36 19	4 21	89.3	10.7	2.55	2.85	5.1
15.1	4.480	2/36	.....do..........	2/34	.....do..........	2	8	113	62	110½	40 40	36 23	4 17	89.5	10.5	2.72	3.04	5.1
15.0	4,224	2/36	.....do..........	2/32	.....do..........	2	8	106	64	104	40 40	37 40	3 00	92.6	7.4	2.56	2.76	5.3
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	118	40 40	32 22	8 18	79.6	20.4	2.90	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	118	40 40	32 22	8 18	79.6	20.4	2.90	3.65	5.0
15.0	4.224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	111½	40 40	30 35	10 05	75.2	24.8	2.74	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	119½	40 10	32 47	7 23	81.6	18.4	2.98	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	120	40 40	32 55	7 45	80.9	19.1	2.95	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	2	8	106	64	99	40 40	35 52	4 48	88.2	11.8	2.43	2.76	5.3
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	121	40 10	33 31	6 39	83.4	16.6	3.01	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	108½	40 40	29 46	10 54	73.2	26.8	2.67	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	117	40 40	32 05	8 35	78.9	21.1	2.88	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	110	40 40	30 10	10 30	74.2	25.8	2.70	3.65	5.0
13.2	4,480	2/41	.....do..........	2/40	.....do..........	1	8	140	64	130½	40 40	35 47	4 53	88.0	12.0	3.21	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	119½	40 40	32 47	7 53	80.6	19.4	2.94	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do..........	2	8	106	64	95½	40 40	34 36	6 04	85.1	14.9	2.35	2.76	5.3
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	104½	39 10	28 40	10 30	73.2	26.8	2.67	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	130	40 40	35 39	5 01	87.7	12.3	3.20	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	128	40 40	35 07	5 33	86.4	13.6	3.15	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	2	8	106	64	98½	40 40	35 41	4 59	87.7	12.3	2.42	2.76	5.3
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	122½	40 40	36 36	4 04	90.0	10.0	3.01	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	112	40 40	30 43	9 57	75.5	24.5	2.75	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	2	8	113	64	101½	40 40	34 29	6 11	84.8	15.2	2.50	2.94	5.3
15.0	4,224	2/36	.....do..........	2/32	.....do..........	2	8	113	64	112½	40 40	38 14	2 26	94.0	6.0	2.77	2.94	5.3
15.0	4,224	2/36	.....do..........	2/32	.....do..........	2	8	113	64	102	40 40	34 19	6 21	84.4	15.6	2.51	2.94	5.3
15.0	4,224	2/36	.....do..........	2/32	.....do..........	2	8	106	64	101½	40 40	36 46	3 54	90.4	9.6	2.47	2.76	5.3
15.0	4,224	2/36	.....do..........	2/32	.....do..........	1	8	140	64	126	40 40	34 34	6 06	85.0	15.0	3.10	3.65	5.0
13.2	4,480	2/41	.....do..........	2/40	.....do..........	1	8	140	64	113	40 10	31 00	9 10	77.2	22.8	2.81	3.65	5.0
13.2	4.480	2/41	.....do..........	2/40	.....do..........	1	8	140	64	114	40 10	33 44	6 26	84.0	16.0	3.06	3.65	5.0
15.0	4,224	2/36	.....do..........	2/32	.....do..........	2	8	120	64	109	40 40	34 53	5 47	85.8	14.2	2.66	3.13	5.3
15.0	4,224	2/36	.....do..........	2/32	.....do..........	2	8	113	64	108½	40 40	36 52	3 48	90.7	9.3	2.67	2.94	5.3
15.0	4,224	2/36	.....do..........	2/32	.....do..........	2	8	120	64	106	40 10	33 55	6 15	84.4	15.6	2.64	3.13	5.3

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—Loom was producing.	Actual time—Lost in stoppages.	Per cent of total time—Loom was producing.	Per cent of total time—Lost in stoppages.	Yards woven per hour—Of total time.	Yards woven per hour—Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
15.0	4,224	2/36	Worsted	2/32	Worsted	2	8	113	64	109	40 40	37 02	3 38	91.1	8.9	2.68	2.94	5.3
15.0	4,224	2/36	do	2/32	do	1	8	140	64	122	40 40	33 28	7 12	82.3	17.7	3.00	3.65	5.0
15.0	4,224	2/36	do	2/32	do	2	8	113	64	111	40 40	37 43	2 57	92.7	7.3	2.73	2.94	5.3
15.0	4,224	2/36	do	2/32	do	2	8	113	64	111	40 40	37 43	2 57	92.7	7.3	2.73	2.94	5.3
15.0	4,224	2/36	do	2/32	do	1	8	140	64	114	40 10	31 16	8 54	77.8	22.2	2.84	3.65	5.0
15.1	4,224	2/36	do	2/32	do	1	8	140	64	126	40 10	34 34	5 36	86.0	14.0	3.14	3.65	5.0
15.0	4,224	2/36	do	2/32	do	2	8	126	64	111	40 40	33 52	6 48	83.3	16.7	2.73	3.28	5.0
15.0	4,224	2/36	do	2/32	do	2	8	126	64	84	40 40	25 36	15 04	63.0	37.0	2.07	3.28	5.0
15.0	4,224	2/36	do	2/32	do	2	8	113	64	41	40 10	35 17	4 53	87.8	12.2	2.69	2.94	5.3
14.6	4,224	2/34	do	2/38	do	2	8	113	64	104	40 40	35 20	5 20	86.9	13.1	2.56	2.94	5.3
15.0	4,224	2/36	do	2/32	do	1	8	140	64	116	40 40	31 49	8 51	78.2	21.8	2.85	3.65	5.0
15.0	4,224	2/36	do	2/32	do	2	8	113	64	91½	39 50	31 05	8 45	78.1	21.9	2.30	2.94	5.3
15.0	4,224	2/36	do	2/32	do	1	8	140	64	120	40 40	32 55	7 45	80.9	19.1	2.95	3.65	5.0
15.0	4,224	2/36	do	2/32	do	2	8	113	64	109½	40 40	37 13	3 27	91.5	8.5	2.69	2.94	5.3
15.0	4,224	2/36	do	2/32	do	1	8	140	64	123	40 40	33 44	6 56	83.0	17.0	3.02	3.65	5.0
15.0	4,224	2/36	do	2/32	do	1	8	140	64	135	40 40	37 02	3 38	91.1	8.9	3.32	3.65	5.0
13.2	4,480	2/41	do	2/40	do	1	8	140	64	128½	39 40	35 16	4 24	88.9	11.1	3.24	3.64	5.0
15.0	4,224	2/36	do	2/32	do	2	8	106	64	99	40 40	35 52	4 48	88.2	11.8	2.43	2.76	5.3
15.0	4,224	2/36	do	2/32	do	1	8	140	64	130½	40 40	35 47	4 53	88.0	12.0	3.21	3.65	5.0
13.2	4,480	2/41	do	2/40	do	1	8	140	64	135	40 40	37 02	3 38	91.1	8.9	3.32	3.65	5.0
15.0	4,224	2/36	do	2/32	do	2	8	113	64	82½	40 40	28 02	12 38	68.9	31.1	2.08	2.94	5.3
15.0	4,224	2/36	do	2/32	do	1	8	140	64	113	40 40	30 59	9 41	76.2	23.8	2.78	3.65	5.0
15.0	4,224	2/36	do	2/32	do	2	8	106	64	97½	40 40	35 19	5 21	86.9	13.1	2.4	2.76	5.0
15.0	4,224	2/36	do	2/32	do	2	8	113	64	63	25 50	21 25	4 25	82.9	17.1	2.4	2.94	5.3
15.0	4,224	2/36	do	2/32	do	2	8	113	64	101½	40 40	34 29	6 11	84.8	15.2	2.5	2.94	5.3
12.8	4,224	2/40	do	2/40	do	2	8	113	64	103	40 10	35 00	5 10	87.1	12.9	2.6	2.94	5.3
15.0	4,224	2/36	do	2/32	do	2	8	126	64	119½	40 40	36 25	4 15	89.6	10.4	2.9	3.28	5.0

15.0	4,224	2/36	do	2/32	do	2	8	126	64	117½	40 40	35 49	4 51	88.1	11.9	2.9	3.28	5.0
15.0	4,224	2/36	do	2/32	do	2	8	126	64	111½	40 40	33 59	6 41	83.6	16.4	2.7	3.28	5.0
13.4	4,480	2/40	do	1/22	do	2	8	106	68	91	40 40	35 02	5 38	86.1	13.9	2.24	2.60	5.7
15.8	4,608	2/36	do	1/19	do	2	8	113	72	98	40 40	38 58	1 42	95.8	4.2	2.4	2.62	6.1
15.6	3,696	2/40	do	2/40	do	2	8	113	56	122½	40 40	36 25	4 15	89.5	10.5	3.01	3.36	4.7
17.9	4,032	2/28	do	2/28	do	2	8	106	60	64	40 10	31 15	8 55	77.8	22.2	2.99	2.94	5.0
17.1	3,864	2/28	do	2/28	do	1	8	140	60	126½	40 10	32 53	7 17	84.3	15.7	3.15	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	131	40 10	33 41	6 29	83.9	16.1	3.26	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	139	40 40	35 44	4 56	85.4	14.6	3.42	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	143½	40 40	36 54	3 46	90.7	9.3	3.53	3.89	4.7
17.1	3.864	2/28	do	2/28	do	1	8	140	60	128	40 10	32 47	7 23	81.6	18.4	3.19	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	132	40 40	33 57	6 43	93.5	6.5	3.25	3.89	4.7
17.1	3,864	2/28	do	2/28	do	2	8	106	60	100	40 40	33 58	6 42	83.5	16.5	2.46	2.94	5.0
15.5	3,864	2/32	do	1/15	do	1	8	140	60	123½	40 40	31 46	8 54	78.1	21.9	3.04	3.89	4.7
15.6	3,864	2/28	do	2/36	do	2	8	106	60	39	39 50	28 44	11 06	72.1	27.9	2.26	2.94	5.0
17.1	3,864	2/28	do	2/28	do	1	8	140	60	125	40 10	32 08	8 02	80.0	20.0	3.11	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	132	40 40	33 57	6 43	83.5	16.5	3.25	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	117	40 10	30 41	9 29	76.4	23.6	2.91	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	137½	40 40	35 22	5 18	87.0	13.0	3.38	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	134½	40 40	34 35	6 05	85.0	15.0	3.31	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	142½	40 40	36 38	4 02	90.1	9.9	3.50	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	104½	39 00	32 08	6 52	82.4	17.6	3.21	3.89	4.7
17.1	3,864	2/28	do	2/28	do	2	8	113	60	108	40 40	34 25	6 15	84.6	15.4	2.66	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	119	40 40	37 55	2 45	93.2	6.8	2.93	3.14	5.0
17.1	3,864	2/28	do	2/28	do	1	8	140	60	116	39 50	33 40	6 10	84.5	15.5	3.26	3.89	4.7
17.1	3,864	2/28	do	2/28	do	2	8	113	60	108	40 40	34 25	6 15	84.6	15.4	2.66	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	104	40 40	33 08	7 32	81.5	18.5	2.56	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	116	40 40	36 57	3 43	90.9	9.1	2.85	3.14	5.0
17.1	3,864	2/28	do	2/28	do	1	8	140	60	114½	40 10	33 25	6 45	83.2	16.8	3.21	3.89	4.7
17.1	3,864	2/28	do	2/28	do	2	8	113	60	77	28 20	24 32	3 48	86.6	13.4	2.72	3.14	5.0
17.1	3,864	2/28	do	2/28	do	1	8	140	60	95	28 20	24 24	3 56	86.1	13.9	3.35	3.89	4.7
17.1	3,864	2/28	do	1/28	do	2	8	113	60	108½	40 40	25 55	14 45	63.7	36.3	2.67	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	109½	40 40	34 34	6 06	85.0	15.0	2.67	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	108	40 40	34 25	6 15	84.6	15.4	2.66	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	125	40 40	39 49	51	97.9	2.1	3.07	3.14	5.0
17.1	3,864	2/28	do	2/28	do	1	8	140	60	143	40 40	36 46	3 54	90.4	9.6	3.52	3.89	4.7
17.1	3,864	2/28	do	2/28	do	2	8	120	60	126½	40 40	37 57	2 43	93.3	6.7	3.11	3.33	5.0
17.1	3,864	2/28	do	2/28	do	2	8	120	60	123½	40 40	37 03	3 37	91.1	8.9	3.04	3.33	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	110	40 40	35 02	5 38	86.1	13.9	2.71	3.14	5.0
17.9	4,032	2/28	do	2/28	do	2	8	113	60	114	40 40	36 19	4 21	89.3	10.7	2.80	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	118	40 40	37 35	3 05	86.4	13.6	2.90	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	109½	40 40	34 53	5 47	85.8	14.2	2.69	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	112½	40 40	35 50	4 50	88.2	11.8	2.77	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	126	60	127	40 40	36 17	4 23	89.2	10.8	3.12	3.50	4.7
17.1	3,864	2/28	do	2/28	do	2	8	113	60	120	40 40	38 14	2 26	94.0	6.0	2.95	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	112½	40 40	35 50	4 50	86.4	13.6	2.77	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	113	60	113	40 40	36 00	4 40	88.5	11.5	2.78	3.14	5.0
17.1	3,964	2/28	do	2/28	do	2	8	113	60	125	40 40	39 49	51	97.9	2.1	3.07	3.14	5.0
17.1	3,864	2/28	do	2/28	do	2	8	140	60	144½	40 40	37 10	3 30	91.4	8.6	3.55	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	127½	39 40	32 47	6 53	82.7	17.3	3.21	3.89	4.7
17.1	3,864	2/28	do	2/28	do	1	8	140	60	144½	40 40	37 10	3 30	91.4	8.6	3.55	3.89	4.7

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

FEMALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
15.1	3,840	2/28	Worsted	1/18	Worsted	3	8	108	56	40¼	17 30	12 31	4 59	71.5	28.5	2.30	3.21	3.96
14.8	3,808	2/28	do	1/18	do	3	12	108	56	107¾	45 15	33 26	11 49	73.9	26.1	2.38	3.21	4.51
15.2	3,840	2/28	do	1/18	do	3	8	108	56	65	30 00	20 13	9 47	67.4	32.6	2.17	3.21	3.96
14.8	3,840	2/28	do	1/18	do	3	8	108	56	82½	40 00	25 40	14 20	64.2	35.8	2.06	3.21	3.96
15.8	4,080	2/28	do	1/18	do	3	8	106	58	79¼	28 15	26 01	2 14	92.1	7.9	2.81	3.05	4.07
12.4	4,080	2/40	do	2/40	do	3	8	108	60	86¼	37 30	28 50	8 40	84.8	15.2	2.30	3.00	4.18
12.4	4,080	2/40	do	2/40	do	3	8	108	60	84½	98 30	54 45	43 45	55.5	44.5	3.34	3.00	4.18
12.6	4,080	2/40	do	2/40	do	3	8	108	60	79	42 45	26 20	16 25	61.6	38.4	3.72	3.00	4.18
12.5	4,080	2/40	do	2/40	do	3	8	108	60	105¼	46 00	35 00	11 00	76.1	23.9	2.28	3.00	4.18
12.5	4,080	2/40	do	2/40	do	3	8	108	60	66	36 30	22 00	14 30	60.3	39.7	1.81	3.00	4.18
12.7	4,080	2/40	do	2/40	do	3	8	108	60	16½	10 15	5 30	4 45	54.1	45.9	1.61	3.00	4.18
12.4	4,080	2/40	do	2/40	do	3	8	108	60	106	46 45	35 20	11 25	75.6	24.4	2.27	3.00	4.18
10.3	4,080	2/45	do	2/50	do	3	8	108	60	80	42 15	26 40	15 35	63.1	36.9	1.89	3.00	4.18
10.5	3,880	2/40	do	1/28	do	1	8	132	60	130½	49 15	35 35	13 40	72.3	27.7	2.65	3.67	3.63
10.4	3,880	2/40	do	1/28	do	1	8	132	60	105½	49 15	28 46	20 29	58.4	41.6	2.14	3.67	3.63
10.5	3,880	2/40	do	1/28	do	1	8	114	60	64½	24 00	20 22	3 38	84.9	15.1	2.69	3.17	4.18
10.3	3,840	2/42	do	1/28	do	1	8	114	60	103	49 15	32 32	16 43	66.1	33.9	2.09	3.17	4.18
10.6	3,880	2/40	do	1/28	do	1	8	132	60	126¼	43 00	34 26	8 34	80.1	19.9	2.94	3.67	3.63
10.3	3,880	2/40	do	1/28	do	1	8	114	60	116	49 50	36 38	13 12	74.4	25.6	2.36	3.17	4.18
10.5	3,880	2/40	do	1/28	do	1	8	132	60	112½	49 15	33 25	15 50	67.8	32.2	2.49	3.67	3.63
10.3	3,840	2/42	do	1/28	do	1	8	114	60	111¼	49 15	35 13	14 02	71.5	28.5	2.26	3.17	4.18
11.4	3,840	2/42	do	1/28	do	1	8	114	60	107½	48 15	33 57	14 18	70.4	29.6	2.23	3.17	4.18
10.3	3,840	2/42	do	1/28	do	1	8	132	60	126½	48 15	34 30	13 45	71.5	28.5	2.62	3.67	3.63
10.1	3,840	2/42	do	1/28	do	1	8	114	60	124	49 15	39 10	10 05	79.5	20.5	2.52	3.17	4.18
10.3	3,880	2/42	do	1/28	do	1	8	132	60	137¾	49 15	37 34	11 41	76.3	23.7	2.80	3.67	3.63
10.5	3,880	2/40	do	1/28	do	1	8	114	60	124½	49 15	39 19	9 56	79.8	20.2	2.53	3.17	4.18
10.4	3,880	2/40	do	1/28	do	1	8	132	60	97¾	48 45	26 40	22 05	54.7	45.3	2.01	3.67	3.63

10.0	3,840	2/42	.....do..........	1/28	.....do........	3	8	118	60	105¼	44 45	32 11	12 34	71.9	28.1	2.36	3.28	4.18
11.3	4,080	2/40	.....do..........	1/24	.....do........	3	8	108	62	87¾	49 15	30 14	19 01	61.4	38.6	1.78	2.90	4.29
11.8	4,080	2/40	.....do..........	1/24	.....do........	3	8	108	62	203¾	98 30	70 11	28 19	71.3	28.7	2.07	2.90	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do........	3	8	108	62	98¼	49 15	33 56	15 19	68.9	31.1	2.00	2.90	4.29
12.2	4,080	2/40	.....do..........	2/40	.....do........	3	8	108	62	113¾	49 15	39 11	10 04	79.6	20.4	2.31	2.90	4.29
11.3	4,080	2/40	.....do..........	1/24	.....do........	3	8	108	62	106¼	49 30	36 41	12 49	74.1	25.9	2.15	2.90	4.29
11.8	4,500	2/45	.....do..........	2/45	.....do........	3	8	106	62	78¼	40 15	27 33	12 42	68.4	31.6	1.95	2.85	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	154¼	49 15	43 28	5 47	88.3	11.7	3.13	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	112¼	49 15	36 43	12 32	74.5	25.5	2.28	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	139¼	49 15	39 19	9 56	79.8	20.2	2.83	3.55	3.74
11.3	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	91½	42 15	25 47	16 28	61.0	39.0	2.17	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	93½	45 00	30 31	14 29	67.8	32.2	2.08	3.06	4.29
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	113	49 15	31 51	17 24	64.7	35.3	2.29	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	129½	49 15	36 30	12 45	74.1	25.9	2.63	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	121½	49 15	39 39	9 36	80.5	19.5	2.47	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	97	47 15	27 20	19 55	57.9	42.1	2.05	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do	1	8	114	62	101½	49 15	33 07	16 08	67.2	32.8	2.06	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	97¾	49 15	27 25	21 50	55.7	44.3	1.97	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	85¼	46 15	27 49	18 26	60.2	39.8	1.84	3.06	4.29
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	133	49 15	37 29	11 46	76.1	23.9	2.70	3.55	3.74
11.6	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	56	22 30	18 16	4 14	81.2	18.8	2.49	3.06	4.28
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	93	49 15	26 13	23 02	53.2	46.8	1.89	3.55	3.74
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	114¾	43 00	32 20	10 40	75.2	24.8	2.67	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	122½	49 15	34 31	14 44	70.1	29.9	2.49	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	104¼	48 15	29 23	18 52	60.9	39.1	2.16	3.55	3.74
11.6	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	94	48 15	30 40	17 35	63.6	36.4	1.95	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	216½	98 30	61 01	37 29	61.9	38.1	2.19	3.55	3.74
11.6	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	76	49 15	21 25	27 50	43.5	56.5	1.54	3.55	3.74
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	81	49 15	26 26	22 49	53.7	46.3	1.64	3.06	4.29
11.6	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	145½	49 15	41 00	8 15	83.2	16.8	2.95	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	88	48 15	28 43	19 32	59.5	40.5	1.82	3.06	4.29
11.6	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	105½	48 15	29 44	18 31	61.6	38.4	2.19	3.55	3.74
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	107¾	43 45	30 22	13 23	69.4	30.6	2.46	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	94	41 45	30 40	11 05	73.5	26.5	2.25	3.06	4.29
11.7	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	87½	49 15	24 40	24 35	50.1	49.9	1.78	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	94½	49 15	30 50	18 25	62.6	37.4	1.92	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	66¾	30 15	18 49	11 26	62.2	37.8	2.21	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	63	30 15	20 34	9 41	68.0	32.0	2.08	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	13	5 15	4 14	1 01	80.8	19.2	2.48	3.06	4.29
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	116¼	49 15	32 46	16 29	66.5	33.5	2.36	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	114	62	115	49 15	37 32	11 43	76.2	23.8	2.34	3.06	4.29
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	124	46 15	34 57	11 48	74.8	25.2	2.65	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	110	38 30	31 00	7 30	80.5	19.5	2.86	3.55	3.74
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	164	62	116	44 00	37 51	6 09	86.0	14.0	2.64	3.06	4.29
11.5	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	126¾	46 15	35 43	10 32	77.2	22.8	2.74	3.55	3.74
11.3	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	267½	95 30	75 19	22 11	78.9	21.1	2.79	3.55	3.74
11.3	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	241¾	97 30	68 08	29 22	69.9	30.1	2.48	3.55	3.74
11.2	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	124¾	48 45	35 10	13 35	72.1	27.9	2.56	3.55	3.74
11.2	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	325½	97 30	91 48	5 42	94.2	5.8	3.34	3.55	3.74
11.4	4,080	2/40	.....do..........	1/24	.....do........	1	8	132	62	267½	97 30	75 19	20 11	78.9	21.1	2.79	3.55	3.74
11.5	4,080	2/40	.....do..........	1/24	.....do........	3	8	110	62	103½	48 45	35 00	13 45	71.8	28.2	2.12	2.96	4.29
16.0	4,140	2/34	.....do..........	1/15	.....do........	3	8	120	62	75	32 15	23 15	9 00	72.1	27.9	2.33	3.23	4.29
15.9	4,140	2/34	.....do..........	1/15	.....do........	3	8	120	62	88	38 00	27 17	10 43	71.8	28.2	2.32	3.23	4.29

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
11.3	4,080	2/40	Worsted	1/24	Worsted	1	8	120	62	241½	92 00	74 47	17 13	81.3	18.7	2.51	3.23	3.74
16.2	4,140	2/32	...do...	2/32	...do...	3	8	108	64	79½	37 00	28 16	8 44	76.4	23.6	2.15	2.81	4.4
16.3	4,140	2/32	...do...	2/32	...do...	3	8	108	64	87½	35 00	31 07	3 53	89.1	10.9	2.50	2.81	4.4
16.4	4,140	2/32	...do...	2/32	...do...	3	8	106	64	100½	49 15	36 19	12 56	73.7	26.3	2.04	2.76	4.4
11.5	3,968	2/40	...do...	1/24	...do...	3	8	106	64	110½	49 15	40 02	9 13	81.3	18.7	2.24	2.76	4.4
16.1	4,140	2/32	...do...	2/32	...do...	3	8	118	64	88	36 30	28 38	7 52	78.5	21.5	2.41	3.07	4.29
16.6	4,140	2/32	...do...	2/32	...do...	3	8	110	64	212½	97 30	74 05	23 25	76.0	24.0	2.18	2.86	4.4
16.5	4,140	2/32	...do...	2/32	...do...	3	8	120	64	195½	72 45	62 38	10 07	85.7	14.3	2.69	3.13	4.4
16.4	4,140	2/32	...do...	2/32	...do...	3	8	106	64	221½	98 30	80 20	18 10	81.6	18.4	2.25	2.76	4.4
12.6	4,400	2/45	...do...	2/45	...do...	3	8	108	72	95½	49 15	38 18	10 57	77.8	22.2	1.94	2.50	4.95
19.0	3,744	2/24	...do...	2/24	...do...	2	8	113	56	109½	40 40	32 34	8 06	80.1	19.9	2.69	3.36	4.7
17.1	3,864	2/28	...do...	2/28	...do...	1	8	140	60	143½	40 40	36 54	3 46	90.7	9.3	3.53	3.89	4.7
17.1	3,864	2/28	...do...	2/28	...do...	1	8	140	60	125½	39 40	32 16	7 24	81.3	18.7	3.16	3.89	4.7
15.1	4,480	2/36	...do...	2/34	...do...	2	8	106	62	98	40 40	34 23	6 17	84.6	15.4	2.41	2.85	5.1
15.0	4,224	2/36	...do...	2/32	...do	2	8	106	64	97	40 40	35 08	5 32	86.4	13.6	2.39	2.76	5.3
15.0	4,224	2/36	...do...	2/32	...do...	1	8	140	64	116	40 40	31 49	8 51	78.2	21.8	2.85	3.65	5.0
15.0	4,224	2/36	...do...	2/32	...do...	1	8	140	64	128	40 40	35 07	5 33	86.4	13.6	3.15	3.65	5.0
15.0	4,224	2/36	...do...	2/32	...do...	2	8	140	64	105½	39 50	28 56	10 54	72.6	27.4	2.65	3.65	5.0
15.0	4,224	2/36	...do...	2/32	...do...	1	8	140	64	118	40 40	32 22	8 18	79.6	20.4	2.90	3.65	5.0
17.5	3,600	2-24	...do...	2-24	...do...	2	12	90	48	95	40 00	30 24	9 36	75.6	24.4	2.38	3.13	7.2
16.0	4,200	2-30	...do...	2-30	...do...	2	8	90	55	89	39 00	32 40	6 20	83.8	16.2	2.24	2.73	8.25
11.8	4,160	2-40	...do...	1-20	...do...	2	12	90	56	90	40 00	34 00	6 00	85.0	15.0	2.25	2.68	8.4
13.6	3,520	2-30	...do...	2-30	...do...	2	4	123	52	118½	40 40	30 00	10 40	73.8	26.2	2.91	3.94	4.05
14.0	3,226	2-30	...do...	2-30	...do...	2	4	123	52	131½	40 40	28 39	12 01	70.5	29.5	3.23	3.94	4.05
13.6	3,520	2-30	...do...	2-30	...do...	2	4	123	52	130½	40 40	26 15	14 25	64.6	35.4	3.21	3.94	4.05
13.8	3,520	2-30	...do...	2-30	...do...	2	4	123	52	102	40 40	25 54	14 14	63.7	36.3	2.51	3.94	4.05

13.8	3,520	2-30	do	2-30	do	2	4	123	52	76	24 20	19 17	5 03	79.2	20.8	3.12	3.94	4.06
13.8	3,520	2-30	do	2-30	do	2	4	123	52	146¼	40 40	37 04	3 36	91.1	8.9	3.60	3.94	4.06
13.8	3,520	2-30	do	2-30	do	2	4	123	52	146¾	40 40	37 13	3 27	91.5	8.5	3.61	3.94	4.06
20.4	3,600	2-20	do	2-20	do	3	8	98	52	111	40 40	35 20	5 20	86.9	13.1	2.73	3.14	4.68
20.8	3,600	2-20	do	2-20	do	3	8	98	52	107	40 40	34 04	6 36	85.2	14.8	2.63	3.14	4.68
13.8	3,520	2-30	do	2-30	do	2	4	123	52	127	40 40	32 13	8 27	79.2	20.8	3.12	3.94	4.06
13.4	3,520	2-30	do	2-30	do	2	4	123	52	117½	40 40	29 48	10 52	73.3	26.7	2.89	3.94	4.06
14.0	3,520	2-30	do	2-30	do	2	4	123	52	137	40 40	34 45	5 55	88.0	12.0	3.37	3.94	4.06
14.6	3,626	2-30	do	2-30	do	2	4	123	54	56¼	15 00	14 47	13	98.6	1.4	3.75	3.80	4.14
18.0	7,344	2-40	do	2-40	do	5	18	98	58	57½	37 00	20 02	16 58	53.7	46.3	1.55	2.82	11.15
16.8	4,120	2-30	do	2-30	do	2	4	123	58	100	40 40	28 17	12 23	69.5	30.5	2.46	3.53	4.41
18.4	3,900	2-28	do	2-28	do	2	4	123	58	93¼	40 40	26 19	14 21	64.7	35.3	2.29	3.53	4.41
18.6	3,900	2-28	do	2-28	do	2	4	123	58	88	40 40	24 54	15 46	61.2	38.8	2.16	3.53	4.41
6.6	2,800	2/36	do	1/30	do	1	4	120	46	58	18 20	13 20	5 00	72.7	27.3	3.16	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	109	45 50	25 04	20 46	54.7	45.3	2.38	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	126¼	45 50	29 06	16 44	63.5	36.5	2.76	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	126	43 10	28 59	14 11	67.1	32.9	2.92	4.35	2.85
11.0	2,880	2/28	do	1/18	do	1	4	120	46	134	45 50	30 49	15 01	67.2	32.8	2.92	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	20	5 10	4 36	34	89.0	11.0	3.87	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	98	35 40	22 32	13 08	63.0	37.0	2.75	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	134	44 10	30 50	13 20	69.8	30.2	3.03	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	135	45 50	31 03	14 47	67.7	32.3	2.95	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	34	15 20	7 49	7 31	51.0	49.0	2.22	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	137½	45 50	31 38	14 12	69.0	31.0	3.00	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	122	45 50	28 04	17 46	61.2	38.8	2.66	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	128	44 00	38 14	5 46	86.9	13.1	2.91	3.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	115½	45 50	26 34	19 16	58.0	42.0	2.52	4.35	2.74
6.6	2,800	2/36	do	1/30	do	1	4	120	46	123	45 50	28 17	17 33	61.7	38.3	2.68	4.35	2.74
6.6	2,800	2/36	do	1/30	do	1	4	120	46	294½	91 40	67 44	23 56	73.9	26.1	3.21	4.35	2.74
6.6	2,800	2/36	do	1/30	do	1	4	120	46	292½	91 40	67 10	24 30	73.3	26.7	3.20	4.35	2.74
6.6	2,800	2/36	do	1/30	do	1	4	120	46	144½	40 40	33 14	7 26	81.7	18.3	3.50	4.35	2.74
6.6	2,800	2/36	do	1/30	do	1	4	120	46	141	45 50	32 26	13 24	70.8	29.2	3.08	4.35	2.74
6.6	2,800	2/36	do	1/30	do	1	4	120	46	62½	25 30	14 23	11 07	56.4	43.6	2.45	4.35	2.74
6.6	2,800	2/36	do	1/30	do	1	4	120	46	138	45 50	33 44	14 06	69.3	30.7	3.01	4.35	2.74
6.6	2,800	2/36	do	1/30	do	1	4	120	46	255½	91 40	58 46	32 54	64.1	35.9	2.77	4.35	2.74
6.6	2,800	2/36	do	1/30	do	1	4	120	46	152	45 50	34 58	10 52	76.3	23.7	3.32	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	116	45 50	26 41	19 09	58.2	41.8	2.53	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	137	45 50	31 31	14 19	68.7	31.3	2.99	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	114	45 50	26 13	19 37	57.2	42.8	2.49	4.35	2.85
6.6	2,800	2/36	do	1/30	do	1	4	120	46	146½	45 50	33 42	12 08	73.5	26.5	3.20	4.35	2.85
10.68	2,836	2-30	do	1-18	do	2	4	125	48	163¼	55 10	37 37	17 33	68.2	31.8	2.96	4.34	3.1
9.49	2,836	2-30	do	1-24	do	2	4	125	48	131¾	55 10	30 22	24 48	55.0	45.0	2.39	4.34	3.1
10.68	2,836	2-30	do	1-18	do	2	4	125	48	149½	55 10	34 27	20 43	62.4	37.6	2.71	4.34	3.1
10.68	2,836	2-48	do	1-40	do	2	4	125	48	96¼	31 40	22 11	9 29	70.0	30.0	3.04	4.34	3.1
10.68	2,836	2-30	do	1-18	do	2	4	125	48	122¾	55 10	28 17	26 53	51.3	48.7	2.23	4.34	3.1
9.49	2,836	2-30	do	1-24	do	2	4	125	48	132¾	55 50	30 35	25 15	54.8	45.2	2.38	4.34	3.1
10.68	2,836	2-30	do	1-18	do	2	4	125	48	88¾	55 10	20 20	34 50	36.9	63.1	1.58	4.34	3.1
9.70	3,042	2-40	do	2-40	do	2	6	120	50	47	27 10	11 45	15 25	43.3	56.7	1.73	4.00	3.4
9.70	3,288	2-40	do	2-40	do	2	6	120	50	118¼	51 10	29 37	21 33	57.9	42.1	2.32	4.00	3.4
7.44	2,572	1-18	do	1-24	do	2	4	120	50	166¾	55 10	40 01	15 09	72.5	27.5	3.02	4.17	3.1
11.21	2,960	2-36	do	2-36	do	2	6	125	56	154	55 10	41 24	13 46	75.0	25.0	2.79	3.72	3.7
11.21	2.960	2-36	do	2-36	do	2	6	125	56	143	55 10	38 26	16 44	69.7	30.3	2.59	3.72	3.7
11.21	2,960	2-36	do	2-36	do	2	6	125	56	57¾	21 10	15 31	5 39	73.3	26.7	2.73	3.72	3.7

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
7.44	2,572	1-18	Worsted	1-24	Worsted	2	4	125	58	170	55 10	47 20	7 50	85.8	14.2	3.08	3.59	3.1
12.50	4,080	2-40	do	2-40	do	2	8	120	60	67	25 30	20 06	5 24	78.8	21.2	2.63	3.33	4.3
13.73	4,080	2-40	do	2-40	do	2	8	120	60	30½	16 00	9 09	6 51	57.2	42.8	1.91	3 33	4.2
12.50	4,080	2-40	do	2-40	do	2	8	120	60	136	53 00	40 48	12 12	77.0	23.0	2.57	3.33	4.3
10.90	4,080	2-40	do	1-24	do	2	8	120	60	126¼	51 10	37 52	13 18	74.0	26.0	2.47	3.33	4.2
9.95	3,042	2-40	do	2-40	do	2	6	120	60	35¼	14 20	10 35	3 45	73.8	26.2	2.46	3.33	4.2
14.08	4,320	2-38	do	2-38	do	2	8	120	62	50½	23 10	15 40	7 30	67.6	32.4	2.18	3.23	4.1
12.77	4,080	2-40	do	2-40	do	2	8	120	62	50	21 00	15 30	5 30	73.8	26.2	2.38	3.23	4.3
9.70	4,080	2-40	do	2-40	do	2	6	120	62	119	58 40	36 53	21 47	62.9	37.1	2.03	3.23	3.4
12.48	4,080	2-40	do	2-40	do	2	10	120	62	72½	32 50	22 29	10 21	68.5	31.5	2.21	3.23	4.3
12.48	4,080	2-40	do	2-40	do	2	8	120	62	32	25 40	9 55	15 45	38.6	61.4	1.25	3.23	4.5
12.77	4,080	2-40	do	2-40	do	2	8	120	62	101¾	55 10	31 33	23 37	57.2	42.8	1.84	3.23	4.3
12.77	4,080	2-40	do	2-40	do	2	8	120	62	44	21 00	13 38	7 22	65.0	35.0	2.10	3.23	4.3
12.77	4,080	2-40	do	2-40	do	2	8	120	62	119¾	52 10	37 07	15 03	71.2	28.8	2.30	3.23	4.3
13.59	4,320	2-40	do	1-20	do	2	8	120	68	73¾	33 40	25 05	8 35	74.5	25.5	2.19	2.94	4.8
13.50	4,948	2-45	do	2-45	do	2	8	120	72	81¾	50 50	29 26	21 24	57.9	42.1	1.61	2.78	4.3
13.0	3,900	2-36	do	2-36	do	2	4	123	60	102½	40 40	30 00	10 40	73.8	26.2	2.52	3.42	4.59
13.4	3,900	2-36	do	2-36	do	2	4	123	60	113½	40 40	33 13	7 27	81.7	18.3	2.79	3.42	4.59
13.6	3,900	2-36	do	2-36	do	2	4	123	60	112¾	40 40	31 59	8 41	78.6	21.4	2.77	3.42	4.59
13.0	3,900	2-36	do	2-36	do	2	4	123	60	111	40 40	32 29	8 11	79.9	20.1	2.73	3.42	4.59
18.8	4,074	2-28	do	2-28	do	2	4	123	60	122½	40 40	35 51	4 49	87.2	12.8	3.01	3.42	4.59
19.0	4,074	2-28	do	2-28	do	2	4	123	60	154¾	40 40	34 17	6 23	84.3	15.7	3.81	3.42	4.59
13.2	3,900	2-36	do	2-36	do	2	4	123	60	125½	40 40	36 44	3 56	90.3	9.7	2.77	3.42	4.59
13.6	3,900	2-36	do	2-36	do	2	4	123	60	128¾	40 40	37 41	2 59	92.7	7 3	3.17	3.42	4.59
13.4	3,900	2-36	do	2-36	do	2	4	123	60	107	40 40	31 19	9 21	76.5	23.5	2.63	3.42	4.59
16.0	3,900	2-36	do	2-36	do	2	4	123	60	125½	40 40	34 59	5 41	96.0	4.0	3.02	3.42	4.59
13.6	4,340	2-40	do	2-40	do	2	4	123	62	121¾	40 40	38 02	2 38	93.5	6.5	2.99	3.31	4.77

13.4	4,340	2-40	do	2-40	do	2	4	123	62	122¾	40 40	37 07	3 33	92.8	7.7	3.02	3.31	4.77
12.2	4,140	2-24	do	1-25	do	2	4	123	64	99¼	40 40	30 59	9 41	76.1	23.9	2.44	3.20	4.86
12.2	4,140	2-40	do	1-25	do	2	4	123	64	59¼	29 30	18 30	11 00	62.7	37.3	2.01	3.20	4.86
12.2	4,140	2-40	do	1-25	do	2	4	123	64	118	40 40	36 50	3 50	90.3	9.7	2.90	3.20	4.86
12.4	4,140	2-40	do	1-25	do	2	4	123	64	104¾	40 40	32 28	8 12	79.8	20.2	2.58	3.20	4.86
12.2	4,140	2-40	do	1-25	do	2	4	123	64	111½	40 40	34 50	5 50	85.7	14.3	2.74	3.20	4.86
12.2	4,140	2-40	do	1-25	do	2	4	123	64	127¼	40 40	39 44	56	97.7	2.3	3.14	3.20	4.86
12.2	4,140	2-40	do	1-25	do	2	4	123	64	127	40 40	39 39	1 01	97.5	2.5	3.12	3.20	4.86
12.2	4,140	2-40	do	1-25	do	2	4	123	64	115½	40 40	36 04	4 36	88.7	11.3	2.84	3.20	4.86
13.2	5,226	2-50	do	2-50	do	2	4	123	72	97	40 40	34 04	6 36	83.8	16.2	2.38	2.85	5.58
8.8	2,900	2-36	do	1-24	do	1	4	116	43	100½	34 15	22 21	11 54	65.3	34.7	2.93	4.50	2.27
8.8	2,583	2-30	do	1-24	do	1	4	128	44	27	9 30	5 34	3 56	58.6	41.4	2.84	4.85	2.3
8.8	2,583	2-30	do	1-24	do	1	4	132	44	75	23 00	15 00	8 00	65.3	34.7	3.26	5.00	2.3
8.8	2,583	2-30	do	1-24	do	1	8	118	44	84	14 45	7 37	7 08	51.6	48.4	2.30	4.47	2.49
9.6	2,963	2-30	do	1-26	do	1	8	124	46	112¾	34 15	25 06	9 09	73.3	26.7	3.29	4.49	3 17
8.8	2,800	2-36	do	1-26	do	1	4	132	46	120½	34 15	25 12	9 03	73.6	26.4	3.52	4.78	2.49
9.6	2,963	2-30	do	1-26	do	1	4	132	46	123	33 15	25 43	7 32	77.3	22.7	3.70	4.78	2.44
9.6	2,963	2-30	do	1-26	do	1	4	132	46	106¼	32 15	22 13	10 02	68.9	31.1	3.29	4.78	2.44
9.6	2,963	2-30	do	1-26	do	1	4	130	46	104¾	34 15	22 14	12 01	64.9	35.1	3.06	4.71	2.44
8.6	2,800	2-36	do	1-26	do	1	4	120	46	100	33 15	23 00	10 15	69.1	30.9	3.01	4.35	2.54
8.8	2,800	2-36	do	1-26	do	1	4	126	46	108¼	34 15	23 43	10 32	69.2	30.8	3.16	4.57	2.54
10.0	2,963	2-30	do	1-26	do	1	4	128	46	82	25 15	17 41	7 34	70.0	30 0	3.25	4.64	2.44
9.6	2,963	2-30	do	1-26	do	1	4	120	46	68½	34 15	15 46	18 29	46.0	54.0	2.00	4.35	2.78
9.8	2,963	2-30	do	1-26	do	1	4	130	46	115¼	34 15	24 28	9 47	71.4	28.6	3.36	4.71	2.44
10.3	4,000	2/40	do	1/28	do	1	8	114	56	121	49 15	35 40	13 35	72.4	27.6	2.46	3.39	3.96
10.3	4,000	2/40	do	1/28	do	1	8	114	56	132½	49 15	39 03	10 12	79.3	20.7	2.69	3.39	3.96
10.4	4,000	2/40	do	1/28	do	1	8	114	56	95½	41 00	28 09	12 51	68.7	31.3	2.33	3.39	3.96
10.4	3,784	2/40	do	1/28	do	1	8	114	56	103	38 30	30 22	7 08	78.9	21.1	2.68	3.39	3.96
16.2	4,140	2/32	do	2/32	do	3	8	118	64	128½	48 45	39 49	8 56	83.4	16.6	2.77	3.39	4.4
16.2	4,140	2/32	do	2/32	do	3	8	120	64	195¾	72 45	62 38	10 07	85.7	14.3	2.78	3.13	4.4
16.5	4,080	2/28	do	1/16	do	3	8	108	58	112¼	46 15	36.10	10 05	78.2	21.8	2.43	3.10	4.07
15.4	4,140	2/32	do	1/34	do	3	8	118	58	113	47 30	33 20	14 10	70.2	29.8	2.38	3.39	4.07
15.5	4,140	2/32	do	2/34	do	3	8	118	58	135	48 45	39 49	8 56	81.7	18.3	2.77	3.39	4.07
15.3	4,140	2/32	do	2/34	do	3	8	120	58	72	33 30	20 53	12 37	62.3	37.7	2.15	3.45	4.07
12.8	4,320	2/42	do	2/42	do	3	8	118	62	92½	31 15	29 10	2 05	93.3	6.7	2.96	3.17	4.29
9.7	3,228	2-40	do	2-40	do	2	6	120	50	119¼	53 40	29 49	23 51	55.6	44.4	2.22	4.00	3.4
14.49	3,398	2-24	do	1-18	do	2	8	120	52	67½	26 30	17 33	8 57	66.2	33.8	2.55	3.85	3.9
14.49	3,398	2-24	do	1-18	do	2	8	120	52	113	47 50	29 23	18 27	61.4	38.6	2.36	3.85	3.9
14.49	3,398	2-24	do	1-18	do	2	8	120	52	159½	55 10	41 28	13 42	75.2	24.8	2.89	3.85	3.9
12.5	4,080	2-40	do	2-40	do	2	8	120	60	47½	22 40	14 15	8 25	62.9	37.1	2.10	3.33	4.3
13.73	4,080	2-40	do	2-40	do	2	8	120	60	121¾	53 10	36 32	16 38	68.7	31.3	2.29	3.33	4.2
10.9	4,080	2-40	do	1-24	do	2	8	120	60	121¾	46 40	36 32	10 08	78.3	21.7	2.61	3.33	4.2
13.73	4,080	2-40	do	2-40	do	2	8	120	60	122¼	48 10	36 40	11 30	76.1	23.9	2.54	3.33	4.2
12.66	4,080	2-40	do	2-44	do	2	6	120	60	138	53 10	44 24	8 46	83.5	16.5	2.60	3.33	4.2
12.66	4,476	2-40	do	2-44	do	2	6	120	60	129¾	54 10	38 56	15 14	71.9	28.1	2.40	3.33	4.2
12.5	4,080	2-40	do	2-40	do	2	8	120	60	125½	55 10	37 39	17 31	68.2	31.8	2.27	3.33	4.8
12.66	4,476	2-40	do	2-44	do	2	6	120	60	149	55 00	44 42	10 18	81.3	18.7	2.71	3.33	4.2
12.77	4,080	2-40	do	2-40	do	2	8	120	62	123½	55 10	38 17	16 53	69.4	30.6	2.24	3.23	4.8
12.77	4,080	2-40	do	2-40	do	2	8	120	62	108¾	51 10	33 43	17 27	65.9	34.1	2.13	3.23	4.3
10.5	5,005	2-48	do	1-40	do	2	6	120	62	126	57 10	39 04	18 06	68.3	31.7	2.20	3.23	5.9
12.48	4,080	2-40	do	2-40	do	2	8	120	62	122	50 20	37 49	12 31	75.1	24.9	2.42	3.23	4.5
12.77	4,080	2-40	do	2-40	do	2	8	120	62	110¾	54 10	34 20	19 50	63.4	36.6	2.04	3.23	4.3
13.50	4,320	2-40	do	1-20	do	2	8	120	68	70½	44 40	23 58	20 42	53.7	46.3	1.58	2.94	4.8

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.59	4,323	2-40	Worsted	1-20	Worsted	2	8	120	68	84¾	49 20	28 49	20 31	58.4	41.6	1.72	2.94	4.8
13.59	4,320	2-40	do	1-20	do	2	8	120	68	100½	53 10	34 10	19 00	64.3	35.7	1.89	2.94	4.8
13.59	4,320	2-40	do	2-40	do	2	8	120	68	121¼	53 10	41 14	11 56	77.6	22.4	2.28	2.94	4.8
13.12	4,664	2-45	do	2-45	do	2	8	120	72	118½	54 10	42 45	11 25	78.9	21.1	2.19	2.78	5.3
13.5	4,948	2-45	do	2-45	do	2	8	120	72	89¾	50 40	32 19	18 21	63.8	36.2	1.77	2.78	5.3
13.2	4,664	2-45	do	2-45	do	2	8	120	72	103¼	52 40	37 10	15 30	70.6	29.4	1.96	2.78	5.3
13.12	4,664	2-45	do	2-45	do	2	8	120	72	102½	55 10	36 59	18 11	67.0	33.0	1.86	2.78	5.3
13.5	4,948	2-45	do	2-45	do	2	8	120	72	79½	53 50	28 37	25 13	53.2	46.8	1.48	2.78	5.3
13.5	4,948	2-45	do	2-45	do	2	8	120	72	92½	53 50	33 18	20 32	61.9	38.1	1.78	2.78	5.3
13.12	4,664	2-45	do	2-45	do	2	8	120	72	117¼	55 10	42 13	12 57	76.5	23.5	2.13	2.78	5.3
13.4	4,480	2-40	do	1-22	do	2	8	106	68	91	40 40	35 02	5 38	86.1	13.9	2.24	2.60	5.7
10.2	3,555	2-36	do	1-26	do	1	4	128	55	27	10 00	6 58	3 02	69.7	30.3	2.70	3.88	2.96
10.6	3,555	2-36	do	1-26	do	1	4	128	55	87½	34 15	22 34	11 41	65.9	34.1	2.55	3.88	2.96
11.0	3,611	2-36	do	1-25	do	1	8	126	55	75½	32 15	19 46	12 29	61.3	38.7	2.34	3.82	3.33
11.0	3,611	2-36	do	1-23	do	1	8	126	55	104	34 15	27 14	7 01	79.5	20.5	3.04	3.82	3.33
10.4	3,555	2-36	do	1-26	do	1	8	120	55	72	32 30	19 48	12 42	60.9	39.1	2.22	3.64	3.27
10.6	3,611	2-36	do	1-25	do	1	8	124	55	90	33 15	23 57	9 18	72.0	28.0	2.71	3.76	3.05
10.4	3,528	2-36	do	1-26	do	1	8	120	55	87	32 15	23 56	8 19	74.2	25.8	2.71	3.64	3.33
10.2	3,528	2-36	do	1-26	do	1	8	120	55	42½	19 15	11 41	7 34	60.7	39.3	2.21	3.64	3.33
10.2	3,528	2-36	do	1-26	do	1	8	120	55	68½	34 15	18 50	15 25	55.0	45.0	2.00	3.64	3.33
11.0	3,611	2-36	do	1-25	do	1	8	120	55	80½	34 15	22 08	12 07	64.6	35.4	2.35	3.64	3.33
10.4	3,666	2-36	do	1-25	do	1	8	120	55	25	13 30	6 53	6 37	50.9	49.1	1.85	3.64	3.33
10.8	3,611	2-36	do	1-25	do	1	8	116	55	101½	34 15	28 48	5 27	84.1	15.9	2.96	3.52	3.21
10.4	3,528	2.36	do	1-26	do	1	8	126	56	67	28 15	17 52	10 23	63.2	36.8	2.37	3.75	3.33
10.8	3,611	2-36	do	1-25	do	1	8	124	56	84	34 15	22 46	11 29	66.5	33.5	2.45	3.69	3.33
9.8	3,375	2-36	do	1-26	do	1	4	130	56	72	22 00	18 37	3 23	84.6	15.4	3.27	3.87	3.0
12.0	3,360	2-36	do	1-18	do	1	6	124	56	53½	24 45	14 30	10 15	58.6	41.4	2.16	3.69	3.4

11.8	3,360	2-36	do	1-18	do	1	6	120	56	96½	34 15	27 01	7 14	78.9	21.1	2.82	3.57	3.4
9.8	3,375	2-36	do	1-26	do	1	4	124	56	45	20 45	12 11	8 34	58.8	41.2	2.57	3.64	3.65
11.8	3,360	2-36	do	1-18	do	1	6	124	56	22½	6 45	6 05	40	90.3	9.7	3.33	3.69	3.17
8.8	3,360	2-36	do	1-18	do	1	6	120	56	49	18 45	13 43	5 02	73.2	26.8	2.61	3.57	3.17
10.4	3,920	2-40	do	1-26	do	1	8	120	56	21	19 30	5 53	13 37	30.2	69.8	1.08	3.57	3.4
10.4	3,666	2-36	do	1-29	do	1	8	128	60	71¾	34 15	20 11	14 04	58.9	41.1	2.09	3.56	3.63
10.4	3,666	2-36	do	1-29	do	1	8	126	60	89	33 15	25 26	7 49	76.5	23.5	2.68	3.50	3.63
10.6	3,666	2-36	do	1-20	do	1	8	122	60	83½	34 15	24 38	9 37	71.9	28.1	2.44	3.39	3.63
11.8	3,666	2-36	do	1-29	do	1	8	124	60	87¼	34 15	25 20	8 55	74.0	26.0	2.55	3.44	3.63
10.4	3,666	2-36	do	1-29	do	1	8	126	60	58¼	34 15	16 43	17 32	48.8	51.2	1.71	3.50	3.95
10.6	3,666	2-36	do	1-29	do	1	8	128	60	79¼	34 15	22 17	11 58	65.1	34.9	2.31	3.56	3.95
10.4	3,666	2-36	do	1-29	do	1	8	120	60	78¼	32 30	23 29	9 01	72.3	27.7	2.41	3.33	3.63
10.4	3,666	2-36	do	1-29	do	1	8	123	60	80¼	32 15	23 38	8 37	73.3	26.7	2.50	3.42	3.32
10.8	3,666	2-36	do	1-29	do	1	8	124	60	36¾	14 45	10 40	4 05	72.3	27.7	2.49	3.44	3.32
10.8	3,666	2-36	do	1-29	do	1	8	124	60	60	34 15	17 25	16 50	50.9	49.1	1.75	3.44	3.32
10.4	3,666	2-36	do	1-29	do	1	8	125	60	73¼	34 15	21 05	13 10	61.6	38.4	2.14	3.47	3.32
11.6	4,125	2-40	do	1-29	do	1	8	122	62	66¾	32 15	20 21	11 54	63.1	36.9	2.07	3.28	3.87
11.0	4,125	2-40	do	1-29	do	1	8	118	62	26½	13 45	8 21	5 24	60.7	39.3	1.93	3.17	3.63
12.0	4,168	2-40	do	1-26	do	1	8	124	64	89	34 30	27 34	6 56	79.9	20.1	2.58	3.23	3.87
11.2	4,906	2-52	do	2-52	do	1	6	120	66	33	27 30	10 53	16 37	39.6	60.4	1.20	3.03	4.38
9.4	4,460	2-52	do	1-40	do	2	8	124	72	68	29 00	23 41	5 19	81.7	18.3	2.34	2.87	4.21
9.2	4,460	2-52	do	1-40	do	2	8	124	72	67½	34 15	23 31	10 44	68.7	31.3	1.97	2.87	4.21
9.1	4,460	2-52	do	1-40	do	2	8	124	72	55¼	33 15	19 15	14 00	57.9	42.1	1.66	2.87	4.21
9.2	4,460	2-55	do	1-40	do	2	8	126	72	44¾	24 00	15 20	8 40	63.9	36.1	1.86	2.92	4.21
9.2	4,460	2-52	do	1-40	do	2	8	116	72	56	24 30	20 52	3 38	85.2	14.8	2.29	2.69	4.0
8.7	2,948	2-36	do	1-24	do	1	4	132	43	96	34 15	18 46	15 29	54.8	45.2	2.80	5.12	2.3
9.0	2,948	2-36	do	1-24	do	1	4	133	43	127	34 15	24 38	9 37	71.9	28.1	3.71	5.16	2.3
8.8	2,948	2-36	do	1-26	do	1	4	132	43	109¾	34 15	21 27	12 48	62.6	37.4	3.20	5.12	2.3
8.7	2,948	2-36	do	1-24	do	1	4	132	43	71¾	29 00	14 01	14 59	48.4	51.6	2.47	5.12	2.3
9.0	2,948	2-36	do	1-24	do	1	4	136	43	112½	34 15	21 20	12 55	62.3	37.7	3.28	5.27	2.3
8.7	2,948	2-36	do	1-24	do	1	4	134	43	72	30 15	13 52	16 23	45.8	54.2	2.38	5.19	2.3
5.0	1,625	2-36	do	1-24	do	1	4	106	43	34	10 00	8 17	1 43	82.8	17.2	3.40	4.11	1.9
4.8	1,625	2-36	do	1-24	do	1	4	106	43	73	32 30	17 46	14 44	54.7	45.3	2.25	4.11	2.54
5.2	1,625	2-36	do	1-24	do	1	4	106	43	96	31 15	23 22	7 53	74.8	25.2	3.07	4.11	2.54
8.0	2,737	2-36	do	1-24	do	1	4	114	43	107	27 00	24 13	2 47	89.7	10.3	3.96	4.42	2.51
8.8	2,583	2-30	do	1-24	do	1	4	132	44	126	34 15	25 12	9 03	73.6	26.4	3.68	5.00	2.3
9.0	2,583	2-30	do	1-24	do	1	4	132	44	76¾	34 15	15 21	18 54	44.8	55.2	2.24	5.00	2.3
9.0	2,583	2-30	do	1-24	do	1	4	132	44	114½	34 15	22 54	11 21	66.9	33.1	3.34	5.00	2.3
8.8	2,583	2-30	do	1-24	do	1	4	138	44	43½	13 00	8 19	4 41	64.0	36.0	3.35	5.23	2.3
8.8	2,583	2-30	do	1-24	do	1	4	138	44	58¼	16 00	11 08	4 52	69.6	30.4	3.64	5.23	2.3
8.8	2,583	2-30	do	1-24	do	1	4	140	44	71¾	25 30	13 32	11 58	53.1	46.9	2.81	5.30	2.3
9.0	2,583	2-30	do	1-24	do	1	4	133	44	117¼	34 15	23 16	10 59	68.0	32.0	3.42	5.04	2.3
8.8	2,583	2-30	do	1-24	do	1	4	128	44	93¾	30 15	19 20	10 55	63.9	36.1	3.10	4.85	2.3
8.8	2,583	2-30	do	1-24	do	1	4	126	44	85	34 15	17 49	16 26	52.0	48.0	2.48	4.77	2.3
7.4	2,581	2-36	do	1-26	do	1	4	145	45	110½	34 15	20 35	13 40	60.1	39.9	3.23	5.37	2.3
7.4	2,581	2-36	do	1-26	do	1	4	136	45	82¼	23 15	16 20	6 55	70.2	29.8	3.54	5.04	2.44
7.2	2,581	2-36	do	1-26	do	1	4	140	45	60¾	29 00	11 43	17 17	40.4	59.6	2.09	5.19	1.83
7.2	2.581	2-36	do	1-26	do	1	4	140	45	81¾	26 30	15 43	10 47	59.3	40.7	3.08	5.19	1.83
7.2	2,581	2-36	do	1-26	do	1	4	140	45	86¼	24 00	16 38	7 22	69.3	30.7	3.59	5.19	1.83
8.4	2,800	2-36	do	1-26	do	1	4	128	46	122	34 15	26 19	7 56	76.8	23.2	3.56	4.64	2.49
10.0	2,963	2-30	do	1-26	do	1	4	128	46	96¾	34 15	20 52	13 23	60.9	39.1	2.81	4.64	2.44
9.8	2,963	2-30	do	1-26	do	1	4	130	46	102	34 15	21 40	12 35	63.2	36.8	2.98	4.71	2.44
8.3	2,800	2-36	do	1-26	do	1	4	128	46	113	34 15	24 24	9 51	71.1	28.9	3.30	4.64	2.49

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
8.6	2,800	2-36	Worsted	1-26	Worsted	1	4	138	46	101½	34 15	20 15	14 00	59.1	40.9	2.96	5.00	2.49
9.8	2,963	2-30	do	1-26	do	1	4	134	46	121	34 15	24 55	9 20	72.8	27.2	3.53	4.86	2.44
7.8	2,555	2-36	do	1-24	do	1	4	134	46	104	34 15	21 25	12 50	62.5	37.5	3.04	4.86	2.23
8.4	2,800	2-35	do	1-26	do	1	4	135	46	60½	33 30	12 22	21 08	36.9	63.1	1.81	4.89	2.49
10.0	2,963	2-30	do	1-26	do	1	4	140	46	74¾	21 15	14 44	6 31	69.3	30.7	3.52	5.07	2.44
10.0	2,963	2-30	do	1-26	do	1	4	140	46	92½	34 15	18 14	16 01	53.2	46.8	2.70	5.07	2.44
10.2	2,800	2-36	do	1-26	do	1	4	131	46	70¾	34 15	14 55	19 20	43.6	56.4	2.07	4.75	2.49
9.6	2,963	2-30	do	1-26	do	1	4	134	46	122	34 15	25 08	9 07	73.4	26.6	3.56	4.86	2.44
8.4	2,800	2-36	do	1-26	do	1	4	138	46	64¼	34 15	12 01	22 14	35.1	64.9	1.88	5.35	2.49
8.8	2,555	2-36	do	1-24	do	1	4	126	46	55¼	34 15	12 06	22 09	35.3	64.7	1.61	4.57	2.23
9.8	2,963	2-30	do	1-24	do	1	4	138	46	81¾	27 45	15 14	12 31	54.9	45.1	2.94	5.35	2.44
9.6	2,963	2-30	do	1-26	do	1	8	120	46	86	34 15	19 47	14 28	57.8	42.2	2.51	4.35	2.78
11.0	4,125	2-40	do	1-29	do	1	8	125	62	85	34 15	25 18	8 57	73.9	26.1	2.48	3.36	3.6
10.7	4,125	2-38	do	1-29	do	2	8	120	62	56¼	34 15	17 26	16 49	50.9	49.1	1.64	3.23	3.87
10.6	4,125	2-40	do	1-29	do	1	8	120	62	78	34 15	19 13	15 02	56.1	43.9	2.28	3.23	3.87
10.9	4,125	2-40	do	1-29	do	1	8	120	62	43¾	26 45	13 34	13 11	50.7	49.3	1.64	3.23	3.87
10.6	4,125	2-40	do	1-29	do	1	8	120	62	56½	19 15	17 31	1 44	91.0	9.0	2.94	3.23	3.87
10.6	4,125	2-40	do	1-29	do	1	8	120	62	69½	34 15	21 33	12 42	62.9	37.1	2.03	3.23	3.87
12.0	4,168	2-40	do	1-23	do	1	8	122	64	81	34 15	25 30	8 45	74.4	25.6	2.36	3.18	3.87
12.4	4,168	2-40	do	1-23	do	1	8	117	64	89	34 15	29 13	5 02	85.3	14.7	2.60	3.05	3.87
12.2	4,168	2-40	do	1-26	do	1	8	120	64	79¼	34 15	25 22	8 53	74.1	25.9	2.31	3.13	3.87
12.0	4,168	2-40	do	1-23	do	1	8	112	64	51¼	19 30	17 34	1 56	90.1	9.9	2.63	2.92	3.87
12.0	4,168	2-40	do	1-23	do	1	8	112	64	24	10 45	8 14	2 31	74.6	25.4	2.23	2.92	3.87
12.2	4,168	2-40	do	1-23	do	1	8	120	64	88½	34 15	28 19	5 56	86.7	13.3	2.58	3.13	3.87
12.0	4,168	2-40	do	1-23	do	1	8	120	64	47¼	25 00	15 07	9 53	60.5	39.5	1.89	3.13	3.87
12.2	4,168	2-40	do	1-23	do	1	8	120	64	70¾	34 15	22 34	11 41	65.9	34.1	2.06	3.13	3.87
9.2	4,460	2-52	do	1-40	do	2	8	122	72	20	9 00	7 05	1 55	89.8	10.2	1.89	3.77	4.21

9.2	4,460	2-52	.....do..........	1-40	.....do..........	2	8	116	72	72¼	34 15	27 00	7 15	78.8	21.2	2.12	2.69	4.21
9.2	4,460	2-52	.....do..........	1-40	.....do..........	2	8	118	72	74½	34 15	27 16	6 59	79.6	20.4	2.18	2.73	4.21
9.1	4,460	2-52	.....do..........	1-40	.....do..........	2	8	117	72	66½	34 15	24 33	9 42	71.7	28.3	1.94	2.71	4.21
9.2	4,460	2-40	.....do..........	1-40	.....do..........	2	8	124	72	71¾	32 00	25 00	7 00	78.1	21.9	2.24	2.87	4.21
9.0	4,460	2-52	.....do..........	1-40	.....do..........	2	8	122	72	47	21 45	16 38	5 07	76.5	23.5	2.16	2.82	4.21
9.1	4,460	2-52	.....do..........	1-40	.....do..........	1	8	120	72	71	34 15	25 34	8 41	74.6	25.4	2.07	2.78	4.21
9.2	4,460	2-52	.....do..........	1-40	.....do..........	1	8	120	72	65½	34 15	23 35	10 40	68.8	31.2	1.91	2.78	4.21
9.0	4,460	2-52	.....do..........	1-40	.....do..........	2	8	120	72	48½	34 15	17 22	16 53	50.7	49.3	1.42	2.78	4.21
9.4	4,736	2-52	.....do..........	1-40	.....do..........	1	8	124	74	50	30 30	21 08	9 22	69.3	30.7	1.93	2.79	4.9
9.4	4,736	2-52	.....do..........	1-40	.....do..........	1	8	120	74	63	34 15	22 56	11 19	67.0	33.0	1.81	2.70	4.49
10.6	3,128	2-30	.....do..........	1-24	.....do..........	1	8	122	47	107½	34 15	24 51	9 24	72.6	27.4	3.14	4.33	2.86
10.0	3,128	2-30	.....do..........	1-26	.....do..........	1	8	124	47	44	20 45	10 01	10 44	48.2	51.8	2.12	4.40	3.65
15.6	3,248	2-21	.....do..........	1-16	.....do..........	1	12	124	47	85½	19 30	19 23	07	98.9	1.1	4.37	4.40	3.67
8.8	2,880	2-36	.....do..........	1-24	.....do..........	1	4	120	48	44¾	19 30	10 41	8 49	54.8	45.2	2.28	4.17	2.95
8.8	2,880	2-36	.....do..........	1-24	.....do..........	1	4	120	48	56½	28 30	13 34	14 56	47.6	52.4	1.98	4.17	2.95
11.2	3,360	2-36	.....do..........	1-18	.....do..........	1	6	118	50	60	30 45	15 15	15 30	49.6	50.4	1.95	3.93	2.84
11.2	3,360	2-36	.....do..........	1-18	.....do..........	1	6	124	50	120½	34 15	29 05	5 10	84.9	15.1	3.52	4.13	2.84
11.0	3,360	2-36	.....do..........	1-18	.....do..........	1	6	125	50	123	34 15	29 31	4 44	86.2	13.8	3.59	4.17	2.84
11.6	3,360	2-36	.....do..........	1-18	.....do..........	1	6	125	50	97½	34 15	23 20	10 55	68.1	31.9	2.84	4,17	2.84
11.4	3,360	2-36	.....do..........	1-18	.....do..........	1	6	124	50	115¾	34 15	28 00	6 15	81.8	18.2	3.38	4.13	2.84
11.4	3,360	2-36	.....do..........	1-18	.....do..........	1	6	124	50	116¾	34 15	28 15	6 00	82.5	17.5	3.41	4.18	2.84
11.6	3,360	2-36	.....do..........	1-18	.....do..........	1	6	125	50	114¾	34 15	27 29	6 46	80.2	19.8	3.34	4.17	2.84
11.2	3,360	2-36	.....do..........	1-18	.....do..........	1	6	124	50	110¼	32 30	26 40	5 50	82.1	17.9	3.30	4.13	2.84
11.0	3,360	2-36	.....do..........	1-18	.....do..........	1	14	120	50	56	17 45	14 00	3 45	78.9	21.1	3.15	4.00	3.03
9.4	3,263	2-38	.....do..........	1-26	.....do..........	1	4	116	52	70	32 30	21 15	11 15	65.4	34.6	2.43	3.72	3.0
11.8	3,468	2-30	.....do..........	1-26	.....do..........	1	8	126	54	92¼	31 15	23 51	7 24	76.3	23.7	2.97	3.89	3.3
11.6	3,466	2-30	.....do..........	1-26	.....do..........	1	16	120	54	64½	34 15	17 25	16 50	50.9	49.1	1.88	3.70	3.56
10.6	3,555	2-36	.....do..........	1-26	.....do..........	1	8	120	55	95	34 15	26 08	8 07	76.3	23.7	2.77	3.64	3.33
10.6	3,528	2-36	.....do..........	1-26	.....do..........	1	8	120	55	79	28 15	21 44	6 31	76.9	23.1	2.80	3.64	3.05
10.2	3,528	2-36	.....do..........	1-26	.....do..........	1	8	122	55	67	33 15	18 07	15 08	54.5	45.5	2.02	3.70	3.05
10.4	3,528	2-36	.....do..........	1-26	.....do..........	1	8	124	55	66¼	34 15	17 42	16 33	51.7	48.3	1.94	3.76	3.05
10.6	3,555	2,36	.....do..........	1-26	.....do..........	1	4	130	55	98¼	33 15	25 00	8 15	75.2	24.8	2.95	3.94	2.95
10.8	3,555	2-36	.....do..........	1-26	.....do..........	1	4	132	55	150¼	67 30	37 38	29 52	55.7	44.3	2.23	4.00	2.95
10.6	3,555	2-36	.....do..........	1-26	.....do..........	1	4	132	55	64	27 15	16 00	11 15	58.7	41.3	2.35	4.00	2.95
10.8	3,555	2-36	.....do..........	1-26	.....do..........	1	4	130	55	123¾	64 30	31 25	33 05	48.7	51.3	1.92	3.94	2.95
10.8	3,555	2-36	.....do..........	1-26	.....do..........	1	4	130	55	77¼	33 15	19 37	13 38	59.0	41.0	2.32	3.94	2.95
10.8	3,555	2-36	.....do..........	1-26	.....do..........	1	4	132	55	78½	34 15	19 38	14 37	57.3	42.7	2.29	4.00	2.95
10.4	3,555	2-36	.....do..........	1-26	.....do..........	1	4	132	55	96	34 15	24 00	10 15	70.1	29.9	2.80	4.00	2.95
10.8	3,555	2-36	.....do..........	1-26	.....do..........	1	4	132	55	98¾	28 00	24 41	3 19	88.2	11.8	3.53	4.00	2.95
10.6	3,555	2-36	.....do..........	1-26	.....do..........	1	4	132	55	160	59 00	40 00	19 00	67.8	32.2	2.71	4.00	2.95
10.8	3,528	2-36	.....do..........	1-26	.....do..........	1	4	130	55	90	28 15	22 51	5 24	80.9	19.1	3.19	3.94	2.95
10.6	3,555	2-36	.....do..........	1-26	.....do..........	1	4	130	55	105¼	34 15	26 26	7 49	77.2	22.8	3.09	4.00	2.95
10.6	3,555	2-36	.....do..........	1-26	.....do..........	1	4	130	55	67	28 15	17 01	11 14	60.2	39.8	2.37	3.94	2.95
10.4	3,555	2-36	.....do..........	1-26	.....do..........	1	4	130	55	84¼	34 15	21 27	12 48	62.6	37.4	2.47	3.94	2.95
10.4	3,555	2-36	.....do..........	1-26	.....do..........	1	4	128	55	20¼	14 45	5 13	9 32	35.4	64.6	1.87	3.88	2.95
10.8	3,555	2-36	.....do..........	1-26	.....do..........	1	8	124	55	75½	34 15	20 05	14 10	58.7	41.3	2.20	3.76	3.05
10.4	3,555	2-36	.....do..........	1-26	.....do..........	1	8	118	55	57¾	26 00	16 09	9 51	62.1	37.9	2.22	3.58	3.27
10.8	3,528	2-36	.....do..........	1.26	.....do..........	1	8	124	55	66¼	32 00	17 42	14 18	55.3	44.7	2.08	3.76	3.33
10.7	3,528	2-36	.....do..........	1-26	.....do..........	1	8	124	55	56	25 45	15 01	10 44	61.4	38.6	4.58	3.76	3.33
10.7	3,611	2-36	.....do..........	1-25	.....do..........	1	8	124	55	108¾	34 15	29 25	4 50	85.9	14.1	3.18	3.70	3.33
10.6	3,611	2-36	.....do..........	1-25	.....do..........	1	8	120	55	88¼	31 15	24 16	6 59	77.7	22.3	2.82	3.64	3.33
10.0	3,528	2-36	.....do..........	1-26	.....do..........	1	8	122	55	63¼	25 30	17 11	8 19	67.4	32.6	2.49	3.70	3.33
10.2	3,555	2-36	.....do..........	1-26	.....do..........	1	4	128	55	26¼	9 30	6 50	2 40	71.9	28.1	2.79	3.88	2.95

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
10.6	3,555	2-36	Worsted	1-26	Worsted	1	4	134	55	92½	34 15	22 47	11 28	66.5	33.5	2.70	4.06	2.95
10.6	3,555	2-36	do	1-26	do	1	4	132	55	84¾	34 15	21 11	13 04	61.9	38.1	2.47	4.00	2.95
10.2	3,555	2-36	do	1-26	do	1	4	132	55	73¼	34 15	29 25	4 50	85.9	14.1	2.14	4.00	2.95
10.2	3,555	2-36	do	1-26	do	1	4	136	55	79¼	34 15	19 14	15 01	56.1	43.9	2.31	4.12	2.95
10.6	3,555	2-36	do	1-26	do	1	4	134	55	73¾	32 45	18 10	14 35	55.5	44.5	2.25	4.06	2.95
10.8	3,555	2-36	do	1-26	do	1	4	130	55	76	33 15	19 17	13 58	58.0	42.0	2.29	3.94	2.95
10.8	3,555	2-36	do	1-26	do	1	8	129	55	91½	34 15	23 25	10 50	68.4	31.6	2.67	3.91	3.05
10.6	3,828	2-36	do	1-26	do	1	4	136	55	70½	28 30	17 07	11 23	60.1	39.9	2.47	4.12	2.95
10.2	3,555	2-36	do	1-26	do	1	4	130	55	39½	14 00	10 02	3 58	71.7	28.3	2.82	3.94	2.95
10.6	3,555	2-36	do	1-26	do	1	4	128	55	72½	34 15	18 41	15 34	54.5	45.5	2.12	3.88	2.95
10.0	3,555	2-36	do	1-26	do	1	4	134	55	90	34 15	22 10	12 05	64.7	35.3	2.63	4.06	2.95
10.4	3,555	2-36	do	1-26	do	1	4	140	55	76½	34 15	18 02	16 13	52.7	47.3	2.23	4.24	2.95
10.0	3,555	2-36	do	1-26	do	1	4	127	55	61½	25 15	15 59	9 16	63.3	36.7	2.44	3.85	2.95
10.2	3,555	2-36	do	1-26	do	1	4	137	55	80	34 15	19 16	14 59	56.3	43.7	2.34	4.15	2.95
10.6	3,555	2-36	do	1-26	do	1	4	132	55	68¾	34 15	17 11	17 04	50.2	49.8	2.01	4.00	2.95
10.4	3,555	2-36	do	1-26	do	1	4	134	55	69¾	34 15	17 11	17 04	50.2	49.8	2.04	4.06	2.95
10.6	3,555	2-36	do	2-26	do	1	4	142	55	68½	34 15	15 55	18 20	46.5	53.5	2.00	4.30	2.95
10.6	3,555	2-36	do	1-26	do	1	4	140	55	95	34 15	22 23	11 52	65.4	34.6	2.77	4.24	2.95
10.2	3,528	2-36	do	1-26	do	1	8	126	55	100¼	34 15	26 16	7 59	76.7	23.3	2.93	3.81	3.33
10.6	3,611	2-36	do	1-25	do	1	8	124	55	84¾	34 15	22 33	11 42	65.8	34.2	2.47	3.76	3.33
10.6	3,611	2-36	do	1-25	do	1	8	122	55	37¾	16 15	10 13	6 02	62.9	37.1	2.32	3.70	3.33
10.8	3,611	2-36	do	1-25	do	1	8	112	55	27	9 00	7 58	1 02	88.5	11.5	3.00	3.39	3.33
10.2	3,555	2-36	do	1-26	do	1	8	114	55	92½	34 15	26 47	7 28	78.2	21.8	2.70	3.45	3.33
10.2	3,528	2-36	do	1-26	do	1	8	112	55	76	34 15	22 23	11 52	65.4	34.6	2.22	3.39	3.33
10.8	3,611	2-26	do	1-25	do	1	8	114	55	94¼	33 30	27 17	6 13	81.4	18.6	2.81	3.45	3.33
10.2	3,555	2-36	do	1-26	do	1	8	116	55	71	28 30	20 12	6 18	76.2	23.8	2.68	3.51	3.9
10.2	3,555	2-36	do	1-26	do	1	8	120	55	90½	34 15	24 53	9 22	72.7	27.3	2.64	3.64	3.33

10.2	3,528	2-36	.....do..........	1-26	.....do..........	1	8	120	55	39	13 45	10 44	3 01	78.0	22.0	2.84	3.64	3.33
11.0	3,611	2-36	.....do..........	1-25	.....do..........	1	8	120	55	95	34 00	26 08	7 52	76.9	23.1	2.79	3.64	3.33
11.2	3,611	2-36	.....do..........	1-25	.....do..........	1	8	120	55	74	34 00	20 21	13 39	59.9	40.1	2.18	3.64	2.33
10.6	3,611	2-27	.....do..........	1-25	.....do..........	1	8	120	55	84	34 15	23 06	11 09	67.4	32.6	2.45	3.64	3.33
10.8	3,555	2-36	.....do..........	1-26	.....do..........	1	8	120	55	82½	34 15	22 37	11 38	66.0	34.0	2.40	3.64	3.33
10.8	3,528	2-36	.....do..........	1-26	.....do..........	1	8	120	55	62½	29 45	17 11	12 34	57.8	42.2	2.10	3.64	3.33
10.8	3,611	2-36	.....do..........	1-29	.....do..........	1	8	120	55	91½	34 15	25 14	9 01	73.7	26.3	2.68	3.64	3.33
10.2	3,555	2-36	.....do..........	1-26	.....do..........	1	8	120	55	73¾	28 15	20 17	7 58	71.8	28.2	2.61	3.64	3.33
10.2	3,555	2-36	.....do..........	1-26	.....do..........	1	8	118	55	91	34 00	25 27	8 33	74.9	25.1	2.68	3.58	3.33
10.8	3,611	2-36	.....do..........	1-29	.....do..........	1	8	120	55	34½	11 30	9 29	2 01	82.5	17.5	3.00	3.64	3.33
11.8	3,360	2-36	.....do..........	1-18	.....do..........	1	6	122	56	36	12 45	9 55	2 50	77.8	22.2	2.82	3.63	3.27
9.8	3,375	2-36	.....do..........	1-26	.....do..........	1	4	134	56	93½	34 15	23 27	10 48	68.5	31.5	2.73	3.99	3.0
9.8	3,375	2-36	.....do..........	1-26	.....do..........	1	4	134	56	75	25 45	18 49	6 56	73.1	26.9	2.91	3.99	3.0
9.8	3,375	2-36	.....do..........	1-26	.....do..........	1	4	134	56	18	10 30	4 51	5 39	46.2	53.8	1.71	3.99	3.0
9.8	3,375	2-36	.....do..........	1-26	.....do..........	1	4	128	56	80½	28 15	21 04	7 11	74.6	25.4	2.84	3.81	3.0
9.8	3,375	2-36	.....do..........	1-26	.....do..........	1	4	128	56	74½	34 15	19 29	14 46	56.9	43.1	2.17	3.81	3.0
11.8	3,360	2-36	.....do..........	1-18	.....do..........	1	6	122	56	63	18 15	17 21	54	95.1	4.9	3.45	3.63	3.4
12.0	3,360	2-36	.....do..........	1-18	.....do..........	1	6	112	56	83½	34 15	25 03	9 12	73.1	26.9	2.44	3.33	3.4
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	56	83¾	34 15	23 23	10 52	68.3	31.7	2.44	3.57	3.63
11.2	3,611	2-36	.....do..........	1-25	.....do..........	1	8	120	56	60¾	26 00	17 01	8 59	65.4	34.6	2.34	3.57	3.33
11.6	3,360	2-36	.....do..........	1-18	.....do..........	2	6	120	56	44	34 15	12 19	21 56	36.0	64.0	1.28	3.57	3.4
11.8	3,360	2-36	.....do..........	1-18	.....do..........	1	6	120	56	65½	34 15	18 16	15 59	53.3	46.7	1.91	3.57	3.4
10.2	3,555	2-36	.....do..........	1-28	.....do..........	1	8	114	59	58	29 00	18 01	10 59	62.1	37.9	2.00	3.22	3.33
10.2	3,666	2-36	.....do..........	1-29	.....do..........	1	8	126	60	91	34 15	26 00	8 15	75.9	24.1	2.66	3.50	3.63
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	124	60	82½	31 30	24 01	7 29	76.3	23.7	2.63	3.44	3.63
10.6	3,666	2-36	.....do..........	1-29	.....do..........	1	8	126	60	90½	32 30	25 52	6 38	79.6	20.4	2.78	3.50	3.63
11.0	3,666	2-36	.....do..........	1-29	.....do..........	1	8	124	60	96½	34 15	27 56	6 19	81.6	18.4	2.81	3.44	3.32
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	126	60	78	34 15	22 17	11 58	65.1	34.9	2.28	3.50	3.32
10.6	3,666	2-36	.....do..........	1-29	.....do..........	1	8	126	60	73¾	34 15	21 04	13 11	61.5	38.5	2.15	3.50	3.63
11.0	3,666	2-36	.....do..........	1-29	.....do..........	1	8	126	60	83	33 00	23 43	9 17	71.9	28.1	2.52	3.50	3.63
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	61½	34 15	18 23	15 52	53.7	46.3	1.79	3.33	4.27
10.8	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	75½	29 15	22 39	6 36	77.4	22.6	2.58	3.83	3.32
10.6	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	74½	29 15	22 26	6 49	76.7	23.3	2.56	3.33	3.32
10.8	3,666	2-26	.....do..........	1-29	.....do..........	1	8	116	60	88½	34 15	27 32	6 43	70.4	29.6	2.59	3.22	3.63
10.8	3,666	2-36	.....do..........	1-29	.....do..........	1	8	118	60	92½	34 15	28 08	6 07	82.2	17.8	2.69	3.28	3.63
10.6	3,666	2-30	.....do..........	1-29	.....do..........	1	8	112	60	80½	34 15	25 53	8 22	75.6	24.4	2.35	3.11	3.63
10.8	3,666	2-36	.....do..........	1-29	.....do..........	1	8	112	60	77¾	34 15	24 59	9 16	72.9	27.1	2.27	3.11	3.63
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	73½	34 15	22 03	12 12	64.4	35.6	2.15	3.33	3.63
10.2	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	81	34 15	24 18	9 57	70.9	29.1	2.36	3.33	3.63
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	82½	25 45	24 45	1 00	96.1	3.9	3.20	3.33	3.63
10.6	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	80¾	34 15	24 14	10 01	70.7	29.3	2.36	3.33	3.63
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	74½	34 15	22 21	11 54	65.3	34.7	2.18	3.33	3.63
10.8	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	67	34 15	20 06	14 09	58.7	41.3	1.96	3.33	3.63
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	78½	34 15	23 33	10 42	68.8	31.2	2.29	3.33	3.63
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	83	34 15	24 54	9 21	72.7	27.3	2.42	3.33	4.27
10.8	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	82½	34 15	24 41	9 34	72.1	27.9	2.40	3.33	4.27
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	12C	60	56	34 15	16 48	17 27	49.1	50.9	1.64	3.33	3.63
10.6	3,666	2-36	.....do..........	1-29	.....do..........	1	8	119	60	78	32 45	23 36	9 09	72.1	27.9	2.38	3.31	3.63
10.7	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	68	34 15	20 24	13 51	59.6	40.4	1.99	3.33	3.63
10.4	3,666	2-36	.....do..........	1-29	.....do..........	1	8	121	60	40	18 30	11 54	6 36	64.3	35.7	2.16	3.37	3.63
10.2	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	53	34 15	15 54	18 21	46.4	53.6	1.55	3.33	3.63
10.8	3,666	2-36	.....do..........	1-29	.....do..........	1	8	120	60	58	34 15	17 24	16 51	50.8	49.2	1.69	3.33	3.63
8.8	2,800	2-36	.....do..........	1-26	.....do..........	1	4	132	47	92½	34 15	19 43	14 32	57.5	42.5	1.94	3.58	2.49

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN SERGE—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
10.8	3,128	2-30	Worsted	1-26	Worsted	1	8	124	47	95½	34 15	21 43	12 32	63.4	36.6	2.79	4.40	2.94
15.6	3,348	2-21	do	1-16	do	1	8	122	47	83¾	34 15	19 22	14 53	56.5	43.5	2.45	4.33	3.67
10.0	3,128	2-30	do	1-26	do	1	8	120	47	21	7 45	4 56	2 49	63.7	36.3	2.71	4.26	2.65
8.8	2,800	2-36	do	1-24	do	1	4	114	48	99¼	34 15	25 04	9 11	73.2	26.8	2.90	3.96	2.95
8.6	2,800	2-36	do	1-24	do	1	4	120	48	63	26 15	15 07	11 08	57.6	42.4	2.40	4.17	2.95
8.6	2,800	2-36	do	1-24	do	1	4	120	48	87	33 45	20 53	12 52	61.9	38.1	2.58	4.17	2.95
8.6	2,800	2-36	do	1-24	do	2	4	120	48	78¾	28 15	18 54	9 21	66.9	33.1	2.79	4.17	2.95
9.4	2,800	2-36	do	1-24	do	1	4	120	48	68	25 15	16 19	8 56	64.6	35.4	2.69	4.17	2.95
9.4	2,800	2-36	do	1-24	do	1	4	120	48	75½	29 15	18 07	11 08	61.9	38.1	2.58	4.17	2.95
11.2	3,360	2-36	do	1-18	do	1	6	122	50	123¾	34 15	30 26	3 49	88.9	11.1	3.61	4.07	3.84
11.2	3,360	2-36	do	1-18	do	1	6	126	50	126½	34 15	30 22	3 53	88.6	11.4	3.69	4.17	2.92
11.4	3,360	2-36	do	1-18	do	1	6	120	50	116½	34 15	29 08	5 07	85.0	15.0	3.40	4.00	2.92
11.4	3,360	2-36	do	1-18	do	1	6	122	50	87	34 15	21 23	12 52	62.5	37.5	2.54	4.07	2.84
11.0	3,360	2-36	do	1-18	do	1	6	120	50	46¼	34 15	11 34	22 41	33.8	66.2	1.35	4.00	2.92
10.8	3,360	2-36	do	1-18	do	1	6	116	50	59	34 15	15 16	18 59	44.6	55.4	1.72	3.87	3.03
11.2	3,360	2-36	do	1-18	do	1	6	120	50	33	14 45	8 15	6 30	55.9	44.1	2.24	4.00	3.03
11.0	3,360	2-36	do	1-18	do	1	6	116	50	206½	68 20	53 25	14 55	78.0	22.0	3.01	3.87	3.03
11.0	3,360	2-36	do	1-18	do	1	6	116	50	104	29 15	26 54	2 21	92.0	8.0	3.56	3.87	2.92
11.0	3,360	2-36	do	1-18	do	1	6	116	50	112	34 15	28 58	5 17	84.6	15.4	3.27	3.87	2.84
8.8	2,862	2-36	do	1-26	do	1	4	140	51	108	32 30	23 37	8 53	72.7	27.3	3.32	4.58	2.14
8.6	2,862	2-36	do	1-26	do	1	4	132	51	89	34 15	20 38	13 37	60.2	39.8	2.60	4.31	2.38
9.6	3,263	2-38	do	1-26	do	1	4	116	52	60	29 00	16 08	12 52	55.6	44.4	2.07	3.72	3.05
9.8	3,268	2-38	do	1-26	do	1	4	136	52	78	33 00	17 58	15 07	54.2	45.8	2.36	4.36	2.84
24.0	3,263	2-38	do	1-26	do	1	4	112	52	65¼	27 45	18 11	9 34	65.5	34.5	2.35	3.59	3.25
11.6	3,466	2-30	do	1-26	do	1	11	117	54	84½	34 15	23 24	10 51	68.3	31.7	2.47	3.61	3.27
11.4	3,466	2-30	do	1-26	do	1	8	124	54	86½	34 15	22 36	11 39	66.0	34.0	2.53	3.83	3.33

FANCY SERGE.

MALE WEAVERS.

18.6	8,280	2/41	Worsted	1/22	Worsted	3	16	113	36	106½	30 00	24 27	5 33	81.5	18.5	2.73	3.28	5.9
12.0	2,304	3/36	do	3/36	do	3	6	113	36	47	10 10	8 59	1 11	88.4	11.6	4.6	5.23	3.2
17.2	3,528	2/40	do	2/40	do	2	8	106	56	88	40 40	27 52	12 48	68.5	31.5	2.16	3.15	4.7
17.2	3,840	2/28	do	2/28	do	2	8	106	58	113½	40 40	37 16	3 24	91.6	8.4	2.79	3.05	4.9
17.3	3,840	2/28	do	2/28	do	2	8	106	58	94½	39 50	37 41	2 09	94.6	5.4	2.90	3.05	4.9
16.2	4,032	2/28	do	2/28	do	2	16	106	58	112	40 40	36 46	3 54	90.4	9.6	2.76	3.05	5.4
16.8	3,888	2/28	do	2/28	do	2	12	106	58	110½	40 40	36 17	4 23	89.2	10.8	2.72	3.05	5.4
16.5	3,888	2/40	do	2/28	do	2	16	106	58	104	40 40	34 08	6 32	83.9	16.1	2.56	3.05	4.9
16.8	3,864	2/28	do	2/28	do	2	8	113	58	110	40 40	33 53	6 47	83.3	16.7	2.70	3.25	4.9
16.6	3,888	2/28	do	2/28	do	2	8	113	58	122	40 40	37 34	3 06	92.4	7.6	3.00	3.25	4.9
16.8	3,864	2/28	do	2/28	do	3	8	106	58	67	39 50	32 08	7 42	80.7	19.3	2.54	3.15	4.9
17.0	3,840	2/28	do	2/28	do	2	8	106	58	107½	40 40	35 17	5 23	86.8	13.2	2.64	3.05	4.9
16.8	3,864	2/28	do	2/28	do	2	16	113	58	109	40 40	33 34	7 06	82.5	17.5	2.68	3.25	5.4
17.0	3,840	2/28	do	2/28	do	2	8	113	58	117½	40 40	36 11	4 29	89.0	11.0	2.89	3.25	4.9
17.5	3,528	2/24	do	2/28	do	2	8	113	58	114½	40 40	35 16	5 24	86.7	13.3	2.80	3.25	4.9
17.2	3,888	2/28	do	2/28	do	2	8	113	58	115	40 40	35 25	5 15	87.1	12.9	2.83	3.25	4.9
17.2	3,840	2/28	do	2/28	do	2	8	113	58	114½	40 40	35 16	5 24	86.7	13.3	2.82	3.25	4.9
16.6	3,840	2/28	do	2/28	do	2	8	113	58	123½	40 40	38 02	2 38	93.5	6.5	3.04	3.25	4.9
17.5	3,528	2/24	do	2/28	do	2	8	113	58	111	40 40	34 11	6 29	84.1	15.9	2.73	3.25	4.9
17.2	4,062	2/28	do	2/28	do	2	16	110	58	127	40 40	40 11	0 29	98.8	1.2	3.1	3.16	5.4
17.2	3,888	2/28	do	2/28	do	2	8	113	58	121½	40 40	37 25	3 15	92.0	8.0	3.0	3.25	4.9
17.4	3,840	2/28	do	2/28	do	2	8	113	58	120½	40 40	37 07	3 33	91.3	8.7	3.0	3.25	4.9
16.8	3,888	2/28	do	2/32	do	2	8	106	60	103	40 40	34 59	5 41	86.0	14.0	2.53	2.94	5.0
15.3	3,840	2/32	do	2/32	do	2	8	106	60	101	40 40	34 18	6 22	84.3	15.7	2.48	2.94	5.0
15.1	3,840	2/32	do	2/32	do	2	8	106	60	48	39 40	32 14	7 26	81.3	18.7	2.32	2.76	5.0
15.2	3,888	2/32	do	2/32	do	2	8	106	60	101	40 40	34 18	6 22	84.3	15.7	2.48	2.94	5.0
12.9	3,600	2/32	do	1/21	do	2	8	113	60	85	39 40	29 05	10 35	73.3	26.7	2.31	3.14	5.0
16.8	3,600	2/28	do	2/28	do	2	8	113	60	83½	39 50	33 14	6 36	83.4	16.6	2.56	2.94	5.0
13.0	3,600	2/32	do	1/20	do	2	8	113	60	65½	40 10	34 16	5 54	85.3	14.7	2.71	3.14	5.0
16.8	3,600	2/28	do	2/28	do	2	8	113	60	93	39 50	34 31	5 19	86.7	13.3	2.75	3.36	4.7
13.5	3,744	2/32	do	1/20	do	2	8	113	60	77	40 10	34 05	6 05	84.9	15.1	2.66	3.14	5.0
15.2	3,840	2/32	do	2/32	do	2	8	106	60	106½	40 40	36 10	4 30	88.9	11.1	2.62	2.94	5.0
15.1	3,840	2/36	do	2/32	do	2	8	113	60	69	39 50	37 23	2 27	93.9	6.1	2.99	3.14	5.0
14.9	3,840	2/32	do	2/32	do	2	8	113	60	110½	40 40	35 10	5 30	86.2	13.8	2.7	3.14	5.0
16.8	3,600	2/28	do	2/28	do	2	8	113	60	67	40 10	35 17	4 53	87.8	12.2	2.69	3.14	5.0
12.1	4,480	2/41	do	2/46	do	2	8	113	62	112½	40 40	37 02	3 38	91.1	8.9	2.77	3.04	5.1
12.1	4,480	2/41	do	2/46	do	2	8	113	62	102½	40 40	33 44	6 56	83.0	17.0	2.5	3.04	5.1
12.8	4,224	2/40	do	2/40	do	2	8	126	64	116½	40 40	35 30	5 10	87.3	12.7	2.9	3.28	5.0
12.8	4,224	2/40	do	2/40	do	2	8	126	64	111½	40 10	33 59	6 11	84.5	15.5	2.8	3.28	5.0
12.8	4,224	2/40	do	2/40	do	2	8	126	64	111	40 40	33 50	6 50	83.1	16.9	2.7	3.28	5.0
12.8	4,224	2/40	do	2/40	do	2	8	126	64	28	10 10	8 30	1 40	83.6	16.4	2.8	3.28	5.0
12.8	4,224	2/40	do	2/40	do	2	8	126	64	45	14 50	13 43	1 07	92.5	7.5	3.0	3.28	5.0
12.8	4,224	2/40	do	2/40	do	2	8	126	64	23½	10 10	7 10	3 00	70.5	29.5	2.3	3.28	5.0
13.3	4,320	2/41	do	2/40	do	2	8	113	64	35	14 50	11 54	2 56	80.2	19.8	2.4	2.94	5.3
13.0	4,320	2/36	do	1/28	do	2	10	106	76	80½	40 40	34 38	6 02	85.2	14.8	1.98	2.32	7.1
17.0	5,184	2/36	do	2/40	do	2	6	106	76	79	40 40	33 59	6 41	83.6	16.4	1.94	2.32	6.5
16.5	5,080	2/36	do	2/36	do	2	30	94	68	67	40 00	29 05	10 55	70.3	29.7	1.66	2.30	10.2

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY SERGE—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Acual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
16.2	5,080	2/36	Worsted	2/36	Worsted	2	14	98	68	73	40 00	30 23	9 37	75.6	24.4	1.83	2.40	10.2
16.5	5,080	2/36	.....do.........	2/36	.....do........	2	30	98	68	73	40 00	30 23	9 37	75.6	24.4	1.82	2.40	10.2
12.1	3,600	2/36	.....do.........	2/36	.....do........	2	12	94	52	93	40 00	30 52	9 08	77.2	22.8	2.32	3.01	7.8
13.7	4,200	2/36	.....do.........	2/36	.....do........	2	12	98	55	97	40 00	32 40	7 20	80.6	19.4	2.42	2.97	8.25
13.8	4,200	2/36	.....do.........	2/36	.....do........	2	8	100	56	98	40 00	32 56	7 04	82.1	17.9	2.45	2.98	8.4
15.0	4,880	2/36	.....do.........	2/36	.....do........	2	16	98	58	32	16 30	11 22	5 08	68.8	31.2	1.94	2.82	8.7
9.2	2,963	2/30	.....do.........	1/26	.....do........	1	4	126	46	60	20 45	13 08	7 37	63.3	36.7	2.89	4.57	2.44
8.4	2,800	2/36	.....do.........	1/26	.....do........	1	4	140	46	54½	17 15	10 41	6 34	61.9	38.1	3.14	5.07	2.49
10.3	3,128	2/30	.....do.........	1/24	.....do........	1	8	122	47	91	26 15	21 02	5 13	80.1	19.9	3.47	4.33	2.86
10.3	3,128	2/30	.....do.........	1/24	.....do........	1	8	122	47	34½	16 00	7 55	8 05	49.5	50.5	2.14	4.33	2.86
10.3	3,128	2/30	.....do.........	1/24	.....do........	1	8	122	47	28	15 30	6 28	9 02	41.7	58.3	1.81	4.33	2.86
10.3	3,128	2/30	.....do.........	1/24	.....do........	1	12	124	47	65¾	31 30	14 57	16 33	47.5	52.5	2.09	4.40	3.05
10.4	3,128	2/30	.....do.........	1/24	.....do........	1	8	120	47	76¾	29 15	18 02	11 13	61.7	38.3	2.62	4.26	2.86
10.4	3,128	2/30	.....do.........	1/24	.....do........	1	8	124	47	72	23 15	16 22	6 53	70.4	29.6	3.10	4.40	2.6
10.4	3,128	2/30	.....do.........	1/24	.....do........	1	8	118	47	110	34 15	26 17	7 58	76.7	23.3	3.21	4.18	2.86
10.3	3,128	2/30	.....do.........	1/24	.....do........	1	8	120	49	38	16 15	8 56	7 19	55.0	45.0	2.34	4.26	2.86
9.0	3,098	2/36	.....do.........	1/26	.....do........	1	4	130	52	49	31 15	11 46	19 29	37.7	62.3	1.57	4.17	2.7
13.5	1,430	20/3	.....do.........	20/3	.....do........	2	4	115	22	178	45 00	20 26	24 34	45.40	54.60	1.38	2.25	1.5
13.3	1,620	15/2	.....do.........	15/2	.....do........	2	5	115	25	74	11 00	9 39	1 21	87.73	12.27	6.72	7.67	1.63
13.7	2,180	20/2	.....do.........	20/2	.....do........	2	4	90	32	187	50 00	39 53	10 07	79.78	20.22	3.74	4.69	5.61
13.7	2,180	20/2	.....do.........	20/2	.....do........	2	4	90	32	155	86 00	33 04	52 56	38.45	61.55	1.80	4.69	4.65
11.2	3,800	37/2	.....do.........	37/2	.....do........	2	8	95	50	92	49 00	29 03	19 57	59.29	40.71	1.88	3.17	4.1
11.2	3,800	37/2	.....do.........	37/2	.....do........	2	8	95	50	118	48 00	37 16	10 44	77.63	22.37	2.46	3.17	5.19
10.0	4,850	30/1	.....do.........	30/1	.....do........	2	8	115	78	172	112 00	70 00	42 00	62.50	37.50	1.54	2.46	5.7
16.0	3,864	2/28	.....do.........	2/32	.....do........	2	8	106	56	103½	40 40	32 49	7 51	80.7	19.3	2.55	3.15	4.7
16.8	3,888	2/28	.....do.........	2/32	.....do........	2	8	106	56	67½	39 50	32 24	7 26	81.3	18.7	2.37	2.45	4.7

16.2	3,840	2/28	.....do..........	2/36	.....do.........	2	8	106	60	82	39	40	37	22	2	18	94.2	5.8	2.80	3.05	5.0
12.6	4,080	2/36	.....do..........	1/25	.....do.........	2	8	113	60	83	30	30	26	26	4	04	86.7	13.3	2.7	3.14	5.0
12.6	4,080	2/36	.....do..........	1/25	.....do.........	2	8	113	60	23	10	10	7	20	2	50	72.2	27.8	2.3	3.14	5.0
12.4	4,480	2/41	.....do..........	1/25	.....do.........	2	8	113	64	100	40	40	33	59	6	41	83.6	16.4	2.46	2.94	5.3
12.3	4,032	2/36	.....do..........	1/25	.....do.........	2	8	113	64	106½	40	40	36	11	4	29	89.0	11.0	2.62	2.94	5.3
13.1	4,320	2/41	.....do..........	2/40	.....do.........	2	12	106	64	97	40	40	35	08	5	32	86.4	13.6	2.39	2.76	5.9
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	122½	40	40	36	20	4	20	89.3	10.7	3.26	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	127½	40	40	34	58	5	42	86.0	14.0	3.14	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	117	40	40	32	06	8	34	78.9	21.1	2.88	3.65	5.0
12.1	4,224	2/24	.....do..........	2/40	.....do.........	1	8	140	64	101	40	10	33	22	6	48	83.1	16.9	3.06	3.65	5.0
13.2	4,464	2/41	.....do..........	2/40	.....do.........	2	8	106	64	96	40	40	34	47	5	53	85.5	14.5	2.36	2.77	5.3
13.1	4,032	2/36	.....do..........	1/22	.....do.........	1	8	140	64	76	40	10	31	17	8	53	81.7	18.3	2.94	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	121½	39	20	33	20	6	00	84.7	15.3	3.09	3.65	5.0
13.1	4,320	2/41	.....do..........	2/40	.....do.........	2	12	106	64	94½	40	40	34	14	6	26	84.2	15.8	2.32	2.76	5.9
12.8	4,224	2/40	.....do..........	2/40	.....do.........	2	8	106	64	102½	40	40	37	13	3	27	92.0	8.0	2.52	2.76	5.3
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	119	40	40	32	38	8	02	80.2	19.8	2.98	3.65	5.0
16.6	4,224	2/36	.....do..........	2/30	.....do.........	2	8	106	64	89	40	40	32	14	8	26	79.3	20.7	2.19	2.76	5.3
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	124	40	40	34	01	6	39	83.6	16.4	3.05	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	117½	40	40	32	14	8	26	79.3	20.7	2.89	3.65	5.0
13.2	4,416	2/41	.....do..........	2/40	.....do.........	2	8	106	64	92	40	40	33	20	7	20	82.0	18.0	2.26	2.76	5.3
13.3	4,320	2/41	.....do..........	2/40	.....do.........	2	8	113	64	67	25	50	22	46	3	04	88.1	11.9	2.62	2.94	5.3
13.1	4,032	2/36	.....do..........	1/20	.....do.........	2	8	113	64	79	40	10	34	01	6	09	84.7	15.3	2.53	2.94	5.3
13.2	4,032	2/36	.....do..........	1/20	.....do.........	2	8	113	64	108½	40	40	35	10	5	30	86.5	13.5	2.55	2.94	5.3
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	130	40	40	35	40	5	00	87.7	12.3	3.20	3.65	5.0
12.9	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	128½	40	40	35	16	5	24	86.7	13.3	3.16	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	131½	40	40	36	04	4	36	88.7	11.3	3.23	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	124½	40	40	34	09	6	31	84.0	16.0	3.06	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	127	40	40	34	50	5	50	85.7	14.3	3.12	3.65	5.0
13.3	4,004	2/40	.....do..........	1/22	.....do.........	2	8	113	64	89½	39	50	33	07	6	43	83.1	16.9	2.46	3.14	5.3
13.1	4,032	2/36	.....do..........	1/20	.....do.........	2	8	113	64	102½	40	40	34	50	5	50	85.7	14.3	2.52	2.94	5.3
12.8	4,224	2/40	.....do..........	2/40	.....do.........	2	8	126	64	89	30	30	27	07	3	23	88.9	11.1	2.92	3.28	5.0
12.9	4,320	2/41	.....do..........	2/40	.....do.........	2	8	113	64	106	40	40	36	01	4	39	88.9	11.1	2.61	2.94	5.3
12.8	4,224	2/40	.....do..........	2/40	.....do.........	2	8	126	64	118	40	40	35	58	4	42	88.4	11.6	2.90	3.28	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	2	8	126	64	115½	40	40	35	12	5	28	86.6	13.4	2.84	3.28	5.0
13.4	4,032	2/36	.....do..........	1/20	.....do.........	2	8	113	64	109½	40	40	37	13	3	27	91.5	8.5	2.69	2.94	5.3
13.4	4,320	2/41	.....do..........	2/40	.....do.........	2	8	113	64	96½	40	40	32	47	7	53	80.6	19.4	2.4	2.94	5.3
13.2	4,480	2/41	.....do..........	2/40	.....do.........	2	8	113	64	113½	40	40	38	34	2	06	94.8	5.2	2.79	2.94	5.3
13.4	4,032	2/36	.....do..........	1/22	.....do.........	2	12	113	64	105	40	40	35	41	4	59	87.7	12.3	2.58	2.94	5.9
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	127	40	40	34	50	5	50	85.7	14.3	3.12	3.65	5.0
13.3	4,032	2/36	.....do..........	1/22	.....do.........	2	8	113	64	79	39	10	33	41	5	29	86.0	14.0	2.60	2.94	5.3
13.0	4,416	2/41	.....do..........	2/40	.....do.........	2	12	113	64	109	39	20	37	02	2	18	94.2	5.8	2.77	2.94	5.3
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	139	40	40	38	08	2	32	93.8	6.2	3.42	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	131½	40	40	36	04	4	36	88.7	11.3	3.23	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	2	8	140	64	127½	40	40	34	58	5	42	86.0	14.0	3.14	3.65	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	118	40	40	32	22	8	18	79.6	20.4	2.90	3.65	5.0
13.2	3,920	2/36	.....do..........	1/20	.....do.........	2	8	113	64	110½	40	40	37	33	3	07	92.3	7.7	2.72	2.94	5.3
13.1	4,032	2/36	.....do..........	1/20	.....do.........	2	8	120	64	83	40	10	37	26	2	44	93.2	6.8	2.9	3.13	5.3
12.8	4,224	2/40	.....do..........	2/40	.....do.........	1	8	140	64	135½	40	40	37	10	3	30	91.4	8.6	3.0	3.65	5.0
13.4	4,032	2/36	.....do..........	1/22	.....do.........	2	8	113	64	108½	40	40	36	52	3	48	90.7	9.3	2.7	2.94	5.3
13.4	4,320	2/41	.....do..........	2/40	.....do.........	2	8	113	64	110	40	40	37	23	3	17	91.9	8.1	2.7	2.94	5.3
12.8	4,224	2/40	.....do..........	2/40	.....do.........	2	8	126	64	71½	25	50	21	47	4	03	84.3	15.7	2.8	3.28	5.0
12.8	4,224	2/40	.....do..........	2/40	.....do.........	2	8	126	64	119½	40	40	36	25	4	15	80.6	10.4	2.9	3.28	5.0

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY SERGE—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
10.8	3,128	2-30	Worsted	1-24	Worsted	1	10	122	47	61	33 15	14 08	19 07	42.4	57.6	1.83	4.32	2.95
10.4	3,128	2-30	do	1-24	do	1	8	118	47	110	34 15	26 17	7 58	76.7	23.3	3.21	4.18	2.86
10.4	3,128	2-30	do	1-24	do	1	8	120	47	76½	29 15	18 02	11 13	61.7	38.3	2.62	4.25	2.86
10.4	3,128	2-30	do	1-24	do	1	8	124	47	72	23 15	16 22	6 53	70.4	29.6	3.10	4.40	2.6
10.3	3,128	2-30	do	1-24	do	1	8	128	47	34¼	16 00	7 55	8 05	49.5	50.5	2.14	4.33	2.86
10.3	3,128	2-30	do	1-24	do	1	12	124	47	65¾	31 30	14 57	16 33	47.5	52.5	2.09	4.40	3.06
10.3	3,128	2-30	do	1-24	do	1	8	122	47	91	26 15	21 02	5 13	80.1	19.9	3.47	4.33	2.86
10.3	3,128	2-30	do	1-24	do	1	8	120	47	38	16 15	8 56	7 19	55.0	45.0	2.34	4.25	2.86
10.3	3,128	2-30	do	1-24	do	1	8	122	47	28	15 30	6 28	9 02	41.7	58.3	1.81	4.33	2.86
10.8	3,528	2-36	do	1-26	do	1	15	118	54	88¼	34 15	24 28	9 47	71.4	28.6	2.58	3.61	3.6
11.6	3,466	2-30	do	1-26	do	1	11	118	54	98	34 15	26 55	7 20	78.6	21.4	2.86	3.64	3.41
10.3	3,528	2-36	do	1-26	do	1	16	116	54	76	34 15	21 14	13 01	62.0	38.0	2.22	3.58	3.6
10.3	3,528	2-36	do	1-26	do	1	16	112	54	40	14 45	11 34	3 11	78.4	21.6	2.71	3.46	3.6
11.4	3,466	2-30	do	1-26	do	1	8	122	54	86	31 30	22 50	8 40	72.5	27.5	2.73	3.77	3.27
11.4	3,466	2-30	do	1-26	do	1	8	126	54	79¼	32 20	20 31	11 49	63.1	36.9	2.45	3.86	3.27
11.0	3,466	2-30	do	1-26	do	1	8	124	54	99¾	34 15	25 56	8 19	75.7	24.3	2.91	3.85	2.98
11.6	3,466	2-30	do	1-26	do	1	8	126	54	104	34 15	26 44	7 31	78.1	21.9	3.04	3.89	2.98
11.2	3,528	2-36	do	1-26	do	1	8	120	56	60¼	21 00	16 34	4 26	78.9	21.1	2.87	3.64	3.52
10.2	3,528	2-36	do	1-26	do	1	8	120	56	75¼	34 15	20 41	13 34	60.4	39.6	2.20	3.64	3.52
10.8	3,528	2-36	do	1-26	do	1	12	122	56	57	17 45	15 25	2 20	86.9	13.1	3.12	3.70	3.52
11.2	4,126	2-38	do	1-20	do	1	11	120	58	38¼	14 45	11 26	3 19	77.5	22.5	2.59	3.35	3.71
12.0	3,360	2-38	do	1-18	do	1	6	122	58	17¾	9 00	5 09	3 51	57.2	42.8	1.97	3.45	3.56
11.1	4,126	2-38	do	1-20	do	1	14	120	60	81¾	34 15	24 32	9 43	71.6	28.4	2.39	3.33	3.92
11.2	4,126	2-38	do	1-20	do	1	15	120	60	31	17 30	9 18	8 12	53.1	46.9	1.77	3.33	3.97
11.2	4,126	2-38	do	1-20	do	1	11	120	60	78	34 15	23 24	10 51	68.3	31.7	2.28	3.33	3.71

11.4	3,466	2-30	.....do..........	1-26	.....do.........	1	8	122	54	86	31 30	22 50	8 40	72.5	27.5	2.73	3.77	3.27
11.4	2,466	2-30	.....do..........	1-24	.....do.........	1	8	126	54	79¾	32 30	20 31	11 59	63.1	36.9	2.45	3.89	3.27
10.8	3,528	2-36	.....do..........	1-26	.....do.........	1	15	118	54	88½	34 15	24 28	9 47	71.4	28.6	2.58	3.64	3.6
11.6	3,466	2-30	.....do..........	1-26	.....do.........	1	11	118	54	98	34 15	26 55	7 20	78.6	21.4	2.86	3.64	3.41
10.3	3,528	2-36	.....do..........	1-26	.....do.........	1	15	116	54	76	34 15	21 14	13 01	62.0	38.0	2.22	3.58	3.6
10.3	3,528	2-36	.....do..........	1-26	.....do.........	1	15	112	54	40	14 45	11 34	3 11	78.4	21.6	2.71	3.46	3.6
10.8	3,528	2-36	.....do..........	1-26	.....do.........	1	12	122	55	57	17 45	15 25	2 20	86.9	13.1	3.21	3.70	3.52
10.2	3,555	2-36	.....do..........	1-26	.....do.........	1	4	136	55	34½	13 00	8 19	4 41	64.0	36.0	2.63	4.12	2.95
10.2	3,528	2-36	.....do..........	1-26	.....do.........	1	8	120	55	75½	34 15	20 41	13 34	60.4	39.6	2.20	3.64	3.52
14.8	4,730	2/40	.....do..........	2/40	.....do.........	2	12	92	68	96	47 00	42 34	4 26	90.6	9.4	2.04	2.25	11.5
12.0	3,996	2-42	.....do	2-42	.....do	3	8	92	64	122	68 00	50 55	17 05	74.9	25.1	1.79	2.40	9.4
12.0	3,996	2-42	.....do..........	2-42	.....do.........	3	8	106	64	51	26 30	18 29	8 01	69.7	30.3	1.92	2.76	6.4
12.0	3,840	2-42	.....do..........	2-42	.....do.........	3	8	90	66	44	22 00	19 22	2 38	88.0	12.0	2.00	2.27	9.7
12.0	3,840	2-42	.....do..........	2-42	.....do.........	3	8	90	66	123	61 30	54 07	7 23	88.0	12.0	2.00	2.27	9.7
12.0	3,840	2-42	.....do..........	2-42	.....do.........	3	12	90	66	90	42 30	39 36	2 54	93.2	6.8	2.12	2.27	6.6
12.0	3,840	2-42	.....do..........	2-42	.....do.........	3	8	90	66	58	27 00	25 31	1 29	94.5	5.5	2.15	2.27	6.6
12.0	3,840	2-42	.....do..........	2-42	.....do.........	3	12	100	66	110	53 30	48 34	9 56	81.4	18.6	2.06	2.58	6.6
12.0	3,840	2-42	.....do..........	2-42	.....do.........	3	8	106	66	141	67 00	52 40	14 20	78.6	21.4	2.10	2.68	6.6
12.0	3,840	2-42	.....do..........	2-42	.....do.........	3	8	106	66	112	65 30	41 50	23 40	63.9	36.1	1.71	2.68	6.6
12.0	4,212	2-42	.....do..........	2-42	.....do.........	3	15	106	66	38	20 30	14 12	6 18	69.3	30.7	1.85	2.68	6.6
12.0	3,840	2-42	.....do..........	2-42	.....do.........	3	18	90	72	127	66 30	60 58	5 32	91.7	8.3	1.91	2.08	7.2
12.25	6,390	2-60	.....do..........	2-60	.....do.........	3	24	106	84	33	44 30	15 41	28 49	35.2	64.8	.74	2.19	8.4
11.3	3,968	2/40	.....do	1/24	.....do	3	8	106	64	106	49 15	37 41	11 34	76.5	23.5	2.15	2.81	4.95
11.4	4,000	2/40	.....do	1/24	.....do.........	3	20	110	64	92½	47 30	32 12	15 18	67.8	32.2	1.94	2.86	4.95
14.8	4,080	2/32	.....do	1/20	.....do.........	3	8	108	64	114	40 15	40 32	8 48	82.3	17.7	2.21	2.81	4.4

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY SERGE—Continued.

FEMALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			M i	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.0	3,300	30/1	Worsted	10½/1	Worsted	2	6	115	25	139	24 00	18 08	5 52	75.54	24.46	5.79	7.67	3.9
13.3	1,620	15/2	do	15/2	do	2	5	115	25	61	13 00	7 56	5 04	61.15	38.85	4.69	7.67	1.34
17.2	3,900	30/1	do	10½/1	do	2	6	115	25	17	7 00	2 13	4 47	31.67	68.33	2.43	7.67	4.8
14.0	3,900	30/1	do	13½/1	do	2	6	115	25	97	21 00	12 39	8 21	60.24	39.76	4.62	7.67	4.3
13.3	1,620	15/2	do	15/2	do	2	5	115	25	74	23 00	9 39	13 21	41.96	58.04	3.22	7.67	2.2
13.3	1,620	15/2	do	15/2	do	2	5	115	25	126	25 00	16 26	8 34	65.73	34.27	5.04	7.67	2.2
13.0	3,300	30/1	do	10½/1	do	2	6	115	25	133	22 00	17 21	4 39	78.86	21.14	6.05	7.67	3.9
12.0	3,840	2-42	do	2-42	do	3	8	90	64	132	62 30	58 53	3 37	94.2	5.8	2.11	2.34	6.4
12.0	3,840	2-42	do	2-42	do	3	12	106	64	143	70 30	53 25	17 05	75.8	24.2	2.03	2.68	6.6
12.0	3,840	2-42	do	2-42	do	3	8	106	64	142	70 30	51 26	19 04	73.0	27.0	2.01	2.76	6.4
12.0	3,840	2-42	do	2-42	do	3	8	106	64	148	70 30	53 37	16 53	76.0	24.0	2.10	2.76	6.4
12.0	3,840	2-42	do	2-42	do	3	13	90	66	64	35 00	28 10	6 50	80.5	19.5	1.83	2.27	9.7
12.0	3,990	2-42	do	2-42	do	3	10	90	66	94	48 00	41 22	6 38	86.2	13.8	1.96	2.27	9.7
12.0	3,840	2-42	do	2-42	do	3	8	106	66	115	59 30	42 58	16 32	72.2	27.8	1.93	2.68	6.6
12.0	3,840	2-42	do	2-42	do	3	10	106	66	105	65 30	39 14	26 16	59.9	40.1	1.60	2.68	6.6
12.0	3,840	2-42	do	2-42	do	3	8	106	66	118	55 30	44 05	11 25	79.4	20.6	2.13	2.68	6.6
12.0	3,840	2-42	do	2-42	do	3	10	106	66	118	58 00	44 05	13 55	76.0	24.0	2.03	2.68	6.6
12.0	3,840	2-42	do	2-42	do	3	8	106	66	138	70 30	51 33	18 57	73.1	26.9	1.96	2.68	6.6
12.25	6,390	2-60	do	2-60	do	3	16	90	80	70	46 00	37 20	8 40	81.2	18.8	1.52	1.88	8.0
12.25	6,390	2-60	do	2-60	do	3	20	106	80	68	44 30	30 47	13 43	69.2	30.8	1.53	2.21	8.0
12.8	4,224	2/40	do	2/40	do	1	8	140	64	120½	40 40	33 03	7 37	81.3	18.7	2.96	3.65	5.0
13.2	4,320	2/41	do	2/40	do	2	8	106	64	108	40 40	37 19	3 21	91.8	8.2	2.53	2.76	5.3
13.2	4,320	2/41	do	2/46	do	2	8	106	64	93	40 40	33 41	6 59	82.8	17.2	2.29	2.76	5.3
17.5	3,600	2-24	do	2-24	do	2	12	100	48	102	35 00	29 23	5 37	83.5	16.5	2.91	3.47	7.2
10.8	3,128	2-30	do	1-24	do	1	8	118	47	91½	32 00	21 52	10 08	68.3	31.7	2.86	4.18	2.75
10.6	3,128	2-30	do	1-24	do	1	11	120	47	110	34 15	25 51	8 24	75.5	24.5	3.21	4.26	3.06
10.6	3,128	2-30	do	1-24	do	1	8	122	47	108	34 15	23 49	10 26	69.5	30.5	3.01	4.33	2.6
10.4	3,128	2-30	do	1-24	do	1	12	126	47	61½	25 00	13 46	11 14	55.1	44.9	2.46	4.47	3.05
10.4	3,128	2-30	do	1-24	do	1	11	126	47	73½	21 30	16 31	4 59	76.8	23.2	2.34	4.47	3.68
10.6	3,128	2-30	do	1-24	do	1	11	120	47	114½	34 15	26 51	7 24	78.4	21.6	3.34	4.26	3.0

10.7	3,128	2-30	.....do.........	1-24	.....do.........	1	10	122	47	109¾	33 15	25 22	7 53	76.3	23.7	3.30	4.33	2.95
10.3	3,128	2-30	.....do.........	1-24	.....do.........	1	8	120	47	40½	22 00	9 31	12 29	43.3	56.7	1.84	4.26	2.86
10.3	3,128	2-30	.....do.........	1-24	.....do.........	1	8	120	47	79½	32 15	18 41	13 34	57.9	42.1	2.47	4.26	2.86
10.8	3,128	2-30	.....do.........	1-24	.....do.........	1	8	118	47	19½	5 45	4 40	1 05	81.2	18.8	3.89	4.18	2.75
10.8	3,128	2-30	.....do.........	1-24	.....do.........	1	8	118	47	40	17 45	9 34	8 11	53.9	46.1	2.25	4.18	2.75
10.8	3,128	2-30	.....do.........	1-24	.....do.........	1	8	116	47	43½	24 15	10 34	13 41	43.6	56.4	1.79	4.11	2.75
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	8	126	47	97¼	34 15	21 53	12 22	63.9	36.1	2.85	4.47	2.75
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	8	120	47	125¼	34 15	29 29	4 46	86.1	13.9	3.66	4.26	2.67
10.4	3,128	2-30	.....do.........	1-24	.....do.........	1	8	128	48	110½	28 30	24 52	3 38	87.3	12.7	3.88	4.44	3.49
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	8	118	48	81⅜	24 00	19 57	4 03	83.1	16.9	3.41	4.10	2.75
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	8	120	49	82	33 15	20 05	13 10	60.4	39.6	2.47	4.08	2.86
11.4	3,272	2-36	.....do.........	1-21	.....do.........	1	8	120	50	101	34 15	25 15	9 00	73.7	26.3	2.95	4.00	2.94
9.4	3,034	2-36	.....do.........	1-26	.....do.........	1	4	116	50	84½	32 30	21 53	10 37	67.3	32.7	2.60	3.87	2.92
9.0	3,034	2-36	.....do.........	1-26	.....do.........	1	4	124	50	77½	23 15	18 45	4 30	80.6	19.4	3.33	4.13	2.84
10.6	3,080	2-30	.....do.........	1-24	.....do.........	1	11	128	52	96½	34 15	23 31	10 44	68.7	31.3	2.82	4.10	3.3
10.6	3,080	2-30	.....do.........	1-24	.....do.........	1	11	122	52	91	34 15	23 16	10 59	67.9	32.1	2.66	3.91	3.3
10.8	3,080	2-30	.....do.........	1-24	.....do.........	1	11	128	52	77¼	34 15	18 50	15 25	55.0	45.0	2.26	4.10	3.3
11.0	3,080	2-24	.....do.........	1-24	.....do.........	1	8	120	52	91½	33 15	23 47	9 28	71.5	28.5	2.75	3.85	3.16
11.6	3,220	2-30	.....do.........	1-24	.....do.........	1	10	116	52	89	34 15	23 56	10 19	69.9	30.1	2.60	3.72	3.14
11.4	3,080	2-30	.....do.........	1-24	.....do.........	1	12	120	52	95¼	32 30	24 54	7 36	76.6	23.4	2.95	3.85	3.24
11.4	3,466	2-30	.....do.........	1-26	.....do.........	1	12	122	53	90	34 15	23 28	10 47	68.5	31.5	2.63	3.84	3.4
11.4	3 466	2-30	.....do.........	1-26	.....do.........	1	12	126	54	79½	34 15	20 26	13 49	59.7	40.3	2.32	3.89	3.46
11.6	3,466	2-30	.....do.........	1-26	.....do.........	1	12	124	54	80¼	34 15	23 23	10 52	68.3	31.7	2.61	3.83	3.46
10.8	3,528	2-36	.....do.........	1-26	.....do.........	1	15	120	54	101¼	33 15	27 20	5 55	82.2	17.8	3.05	3.70	3.6
11.4	3,466	2-30	.....do.........	1-26	.....do.........	1	11	122	54	77¾	32 30	20 39	11 51	63.5	36.5	2.89	3.77	3.41
10.8	3,528	2-36	.....do.........	1-26	.....do.........	1	15	120	54	98½	33 15	26 32	6 43	79.8	20.2	2.95	3.70	3.6
11.4	3,466	2-30	.....do.........	1-26	.....do.........	1	11	117	54	56	28 30	15 31	12 59	54.4	45.6	1.96	3.61	3.3
11.8	3 466	2-30	.....do.........	1-26	.....do.........	1	11	118	54	66½	29 45	18 15	11 30	61.3	38.7	2.23	3.64	3.3
11.8	3,466	2-30	.....do.........	1-26	.....do.........	1	11	117	54	53½	29 00	14 49	14 11	49.3	50.7	1.85	3.61	3.3
11.4	3,466	1-30	.....do.........	1-26	.....do.........	1	12	118	54	90¾	32 30	24 55	7 35	76.7	23.3	2.79	3.64	3.35
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	8	124	47	93½	29 00	21 16	7 44	73.3	26.7	3.22	4.40	2.6
10.3	3,128	2-30	.....do.........	1-24	.....do.........	1	8	124	47	89	31 30	21 39	9 51	71.5	28.5	5.80	4.40	2.6
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	12	124	47	120	34 15	27 17	6 58	79.7	20.3	3.50	4.40	3.05
10.2	3,128	2-30	.....do.........	1-24	.....do.........	1	12	126	47	88	34 15	19 42	14 33	57.5	42.5	2.57	4.47	3.05
10.2	3,128	2-30	.....do.........	1-24	.....do.........	1	12	124	47	70	24 30	15 55	8 35	65.0	35.0	2.86	4.40	3.05
10.4	3,128	2-30	.....do.........	1-24	.....do.........	1	12	122	47	92¾	27 30	21 26	6 04	78.0	22.0	3.37	4.33	3.05
10.4	3,128	2-30	.....do.........	1-24	.....do.........	1	12	124	47	70½	22 00	16 02	5 58	72.9	27.1	4.32	4.40	3.05
10.4	3,128	2-30	.....do.........	1-24	.....do.........	1	8	126	47	96½	24 30	21 36	2 54	88.2	11.8	3.94	4.47	2.86
10.8	3,128	2-30	.....do.........	1-24	.....do.........	1	8	125	47	58	27 00	13 05	13 55	48.5	51.5	2.15	4.43	2.86
10.4	3,128	2-30	.....do.........	1-24	.....do.........	1	8	134	47	88½	34 15	18 34	15 41	54.2	45.8	2.58	4.75	2.6
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	8	124	47	61	34 15	13 52	20 23	40.5	59.5	1.78	4.40	2.6
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	8	128	47	89½	34 15	19 40	14 35	57.4	42.6	2.61	4.54	2.6
10.4	3,128	2-30	.....do.........	1-24	.....do.........	1	8	126	47	116	34 15	25 58	8 17	75.8	24.2	3.39	4.47	2.6
10.4	3,128	2-30	.....do.........	1-24	.....do.........	1	8	129	47	117¾	34 15	25 44	8 31	75.1	24.9	3.44	4.57	2.6
10.2	3,128	2-30	.....do.........	1-24	.....do.........	1	8	120	47	65	27 00	14 19	12 41	53.0	47.0	2.41	4.54	2.75
10.4	3,128	2-30	.....do.........	1-24	.....do.........	1	8	116	47	92	30 00	22 22	7 38	74.6	25.4	3.07	4.11	2.86
10.4	3,128	2-30	.....do.........	1-24	.....do.........	1	8	126	47	91	31 00	20 22	10 38	65.7	34.3	2.94	4.47	2.86
10.3	3,128	2-30	.....do.........	1-24	.....do.........	1	8	126	47	58½	22 30	13 05	9 25	58.1	41.9	2.60	4.47	2.86
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	8	120	47	102	34 15	23 58	10 17	70.0	30.0	2.98	4.26	2.86
10.3	3,128	2-30	.....do.........	1-24	.....do.........	1	8	116	47	118½	34 15	28 49	5 26	84.1	15.9	3.46	4.11	2.86
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	12	116	47	117½	34 15	28 30	5 45	83.2	16.8	3.42	4.11	3.05
10.6	3,128	2-30	.....do.........	1-24	.....do.........	1	8	112	47	115	34 15	28 58	5 17	84.5	15.5	3.36	3.98	2.86
10.4	3,128	2-30	.....do.........	1-24	.....do.........	1	8	112	47	96	29 15	24 10	5 05	82.6	17.4	3.28	3.97	2.86

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY SERGE—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
10.2	3,128	2-30	Worsted	1-24	Worsted	1	8	114	47	98	34 15	24 14	10 01	70.8	29.2	2.86	4.04	2.86
10.6	3,128	2-30	do	1-24	do	1	8	118	47	125	34 15	29 52	4 23	87.2	12.8	3.65	4.18	2.86
10.3	3,125	2-30	do	1-24	do	1	8	120	47	78	30 30	18 20	12 10	60.1	39.9	2.56	4.26	2.86
10.3	3,128	2-30	do	1-24	do	1	12	120	47	53	27 30	12 28	15 02	45.3	54.7	1.93	4.26	3.05
10.3	3,128	2-30	do	1-24	do	1	8	120	47	52	14 45	12 13	2 32	85.8	14.2	3.53	4.26	2.86
10.3	3,128	2-30	do	1-24	do	1	8	120	47	174⅞	59 30	41 04	18 26	69.6	30.4	2.94	4.26	2.86
10.6	3,128	2-30	do	1-24	do	1	12	120	47	64	30 30	15 02	15 28	49.3	50.7	2.10	4.26	3.05
10.3	3,128	2-30	do	1-24	do	1	8	120	47	84	24 30	19 44	4 46	80.6	19.4	3.43	4.26	2.86
10.3	3,128	2-30	do	1-24	do	1	8	120	47	28	14 45	6 35	8 10	44.6	55.4	1.90	4.26	2.86
10.0	3,128	2-30	do	1-24	do	1	8	120	47	68⅞	34 15	16 10	18 05	47.2	52.8	2.01	4.26	3.05
10.3	3,128	2-30	do	1-24	do	1	8	120	47	105	31 00	24 41	6 19	79.6	20.4	3.39	4.26	2.86
10.3	3,128	2-30	do	1-24	do	1	8	120	47	45	18 15	10 35	7 40	57.5	42.5	2.44	4.25	2.86
10.2	3,128	2-30	do	1-24	do	1	8	120	47	115⅜	34 15	27 05	7 10	79.1	20.9	3.37	4.26	2.86
11.4	3,128	2-30	do	1-24	do	1	8	120	47	91¾	34 15	21 34	12 41	63.0	37.0	2.68	4.26	2.86
10.2	3,128	2-30	do	1-24	do	1	8	120	47	85⅜	34 15	20 02	14 13	58.5	41.5	2.49	4.26	2.86
10.6	3,128	2-30	do	1-24	do	1	8	122	48	96⅝	32 30	22 47	9 43	70.1	29.9	2.97	4.24	2.86
11.6	3,256	2-30	do	1-18	do	2	6	116	50	70	27 00	18 06	8 54	67.0	33.0	2.59	3.87	2.84
8.6	2,862	2-36	do	1-26	do	1	4	136	51	151¼	68 30	34 02	34 28	49.7	50.3	2.21	4.44	2.14
11.2	4,125	2-30	do	1-29	do	1	11	120	51	48⅜	15 15	12 18	2 57	80.7	19.3	1.92	3.33	3.71
10.7	3,080	2-30	do	1-24	do	1	8	120	51	51	20 45	13 01	7 44	62.7	37.3	2.46	3.92	3.1
10.8	3,528	2-36	do	1-26	do	1	8	120	55	77⅜	34 15	21 14	13 01	62.0	38.0	2.26	3.64	3.97
10.6	3,528	2-36	do	1-26	do	1	8	116	55	100	34 15	28 27	5 48	83.1	16.9	2.92	3.52	3.11
10.4	3,528	2-36	do	1-26	do	1	8	116	55	67⅜	34 15	19 12	15 03	56.1	43.9	1.96	3.51	3.33
10.2	3,528	2-36	do	1-26	do	1	8	116	55	70⅜	34 15	20 04	14 11	58.6	41.4	2.06	3.51	3.35
11.4	3,466	2-30	do	1-26	do	1	15	114	55	79	34 15	22 52	11 23	66.8	33.2	2.31	3.45	3.6
11.0	3,528	2-36	do	1-26	do	1	8	120	55	24⅜	11 00	6 44	4 16	61.3	38.7	2.22	3.63	3.62
10.8	3,528	2-36	do	1-26	do	1	14	120	55	99	34 15	27 14	7 01	79.5	20.5	2.89	3.63	3.62
10.8	3,528	2-36	do	1-26	do	1	14	120	55	63	34 15	17 20	16 55	50.6	49.4	1.84	3.63	3.62

10.2	3,528	2-36	.....do.........	1-26	.....do.........	1	12	120	55	91	34 15	25 02	9 13	73.1	26.9	2.66	3.63	3.52
10.3	3,528	2-36	.....do.........	1-26	.....do.........	1	13	120	56	39½	23 15	11 04	12 11	47.6	52.4	1.70	3.58	3.57
10.2	2,980	2-40	.....do.........	1-26	.....do.........	1	8	120	56	66½	31 00	18 33	12 27	59.8	40.2	2.14	3.57	2.86
11.2	4,125	2-38	.....do.........	1-27	.....do.........	1	8	120	58	64¾	24 30	18 47	5 43	76.7	23.3	2.64	3.45	3.67
11.0	4,125	2-38	.....do.........	1-29	.....do.........	1	11	120	58	73½	34 15	21 19	12 56	62.2	37.8	2.15	3.45	3.67
11.0	4,125	2-38	.....do.........	1-29	.....do.........	1	11	120	58	73	33 15	21 10	12 05	63.7	36.3	2.20	3.45	3.67
11.2	4,125	2-38	.....do.........	1-29	.....do.........	1	11	120	58	80½	34 15	23 21	10 54	68.2	31.8	2.35	3.45	3.67
11.2	4,125	2-38	.....do.........	1-29	.....do.........	1	11	116	59	90	34 15	27 28	6 47	80.2	19.8	2.63	3.28	3.71
11.0	4,125	2-38	.....do.........	1-29	.....do.........	1	11	120	59	75¾	34 15	22 21	11 54	65.3	34.7	2.21	3.39	3.71
11.8	4,125	2-38	.....do.........	1-29	.....do.........	1	11	120	59	60	21 00	17 42	3 18	84.3	15.7	2.86	3.39	3.71
11.2	4,125	2-38	.....do.........	1-29	.....do.........	1	11	120	59	46¾	30 30	14 23	16 07	47.1	52.9	1.60	3.39	3.71
11.0	4,125	2-38	.....do.........	1-29	.....do.........	1	8	126	60	80¾	34 15	25 38	8 37	74.9	25.1	2.62	3.50	3.32
11.0	4,125	2-38	.....do.........	1-29	.....do.........	1	12	116	60	85½	33 00	26 32	6 28	80.4	19.6	2.59	3.22	3.83
10.4	3,666	2-36	.....do.........	1-29	.....do.........	1	8	124	60	71	34 15	20 37	13 38	60.2	39.8	2.07	3.44	3.68
11.2	4,125	2.38	.....do.........	1-29	.....do.........	1	11	120	60	26	13 00	7 30	5 30	57.7	42.3	1.92	3.33	3.71
11.2	4,125	2-38	.....do.........	1-27	.....do.........	1	14	116	60	66	33 30	20 29	13 01	61.1	38.9	1.97	3.22	3.92
11.2	4,125	2.38	.....do.........	1-27	.....do.........	1	15	114	60	83½	29 15	26 03	3 12	89.1	10.9	2.82	3.17	3.97
11.2	4,125	2.38	.....do.........	1-29	.....do.........	1	14	120	60	75	34 15	22 30	11 45	65.7	34.3	2.19	3.33	3.92
10.4	3,666	2-36	.....do.........	1-29	.....do.........	1	8	120	60	82½	25 45	24 45	1 00	96.1	3.9	3.20	3.33	3.68
11.1	4,125	2-38	.....do.........	1-29	.....do.........	1	12	120	60	87	34 15	26 06	8 09	76.2	23.8	2.45	3.33	3.63
10.4	3,080	2-30	.....do.........	1-24	.....do.........	1	11	112	62	67¾	34 15	22 30	11 45	65.7	34.3	1.98	3.01	3.8
10.8	3,528	2-36	.....do.........	1-26	.....do.........	1	4	124	56	80	34 15	23 41	10 34	69.2	30.8	2.60	3.76	3.33
11.0	3,528	2.36	.....do.........	1-26	.....do.........	1	13	126	56	79½	32 15	20 46	11 29	64.4	35.6	2.46	3.82	3.57
10.8	3,528	2-36	.....do.........	1-26	.....do.........	1	14	120	55	92½	34 15	25 22	8 53	74.1	25.9	2.69	3.64	3.62
10.6	3,528	2-36	.....do.........	1-26	.....do.........	1	8	116	55	79	34 15	22 28	11 47	65.6	34.4	2.31	3.52	3.21
10.6	3,528	2-36	.....do.........	1-26	.....do.........	1	8	116	56	79¾	32 30	22 41	9 49	69.8	30.2	2.45	3.52	3.21
10.8	3,528	2-36	.....do.........	1-26	.....do.........	1	8	128	55	92½	34 15	23 51	10 24	69.6	30.4	2.70	3.88	3.05
10.6	3,528	2-36	.....do.........	1-26	.....do.........	1	3	128	55	56	21 30	14 26	7 04	67.1	32.9	2.60	3.88	3.05
10.8	3,528	2-36	.....do.........	1-26	.....do.........	1	8	123	55	81½	31 00	21 52	9 08	70.5	29.5	2.63	3.73	3.05
11.4	4,125	2-38	.....do.........	1-29	.....do.........	1	12	126	59	78½	28 15	22 03	6 12	78.1	21.9	2.78	3.56	3.75
11.2	4,125	2-38	.....do.........	1-29	.....do.........	1	11	126	59	83½	34 15	23 23	10 52	68.3	31.7	2.43	3.56	3.71
11.2	4,125	2-38	.....do.........	1-29	.....do.........	1	12	124	59	75½	30 15	21 29	8 46	71.0	29.0	2.49	3.50	3.71
11.2	4,125	2-38	.....do.........	1-29	.....do.........	1	15	120	59	36	21 45	10 37	11 08	48.8	51.2	1.66	3.39	3.9
11.2	4,125	2-38	.....do.........	1-29	.....do.........	1	15	126	60	52½	34 15	16 00	18 15	43.8	56.2	1.63	3.50	3.97
11.2	4,125	2-38	.....do.........	1-29	.....do.........	1	16	120	60	64½	34 15	19 21	14 54	56.5	43.5	1.88	3.33	3.97
11.2	4,125	2-38	.....do.........	1-29	.....do.........	1	8	124	60	82½	33 15	23 57	9 18	72.0	28.0	2.48	3.44	3.63
10.8	3,080	2-30	.....do.........	1-24	.....do.........	1	12	122	52	75	31 15	19 11	12 04	61.4	38.6	2.40	3.91	3.35
10.8	3,080	2-30	.....do.........	1-24	.....do.........	1	8	120	52	79	34 15	20 32	13 43	60.0	40.0	2.31	3.85	3.51
10.6	3,080	2-30	.....do.........	1-24	.....do.........	1	8	120	52	88	30 45	22 53	7 52	74.4	25.6	2.86	3.85	3.51
11.4	3,466	2-30	.....do.........	1-26	.....do.........	1	12	117	52	91¾	34 15	24 28	9 47	71.4	28.6	2.68	3.75	3.46
11.0	3,080	2-38	.....do.........	1-24	.....do.........	1	11	120	52	101	34 15	26 16	7 59	76.7	23.3	2.96	3.85	3.3
11.0	3,080	2-30	.....do.........	1-24	.....do.........	1	8	120	52	79½	33 15	20 40	12 35	62.2	37.8	2.39	3.85	3.16
10.8	3,080	2-30	.....do.........	1-24	.....do.........	1	8	120	52	75½	34 15	19 38	14 37	57.3	42.7	2.20	3.85	3.16
11.4	3,466	2-30	.....do.........	1-26	.....do.........	2	12	121	53	104	34 15	27 20	6 55	79.8	20.2	3.04	3.81	3.4
11.4	3,466	2-30	.....do.........	1-26	.....do.........	1	8	124	54	93½	34 15	24 26	9 49	71.3	28.7	2.73	3.83	2.98
11.0	3,528	2-36	.....do.........	1-26	.....do.........	1	10	118	54	85½	31 30	23 33	7 57	74.7	25.3	2.72	3.64	3.37
11.2	3,466	2-30	.....do.........	1-26	.....do.........	1	8	122	54	81½	30 30	21 38	8 52	71.0	29.0	2.67	3.77	3.27
10.8	3,528	2-36	.....do.........	1.26	.....do.........	1	15	118	54	76½	34 15	20 56	13 19	61.1	38.9	2.23	3.64	3.6
11.4	3,466	2-30	.....do.........	1-26	.....do.........	1	12	116	54	75½	34 15	21 01	13 14	61.4	38.6	2.20	3.58	3.46
11.6	3,466	2-30	.....do.........	1-26	.....do.........	1	11	116	54	103	34 15	28 48	5 27	84.1	15.9	3.01	3.58	3.41
11.4	3,466	2-30	.....do.........	1-26	.....do.........	1	12	124	54	96½	34 15	25 09	9 06	73.4	26.6	2.81	3.83	3.46
11.4	3,466	2-30	.....do.........	1-26	.....do.........	1	12	116	54	88½	34 15	24 43	9 32	72.2	27.8	2.58	3.58	3.46
11.0	3,528	2-36	.....do.........	1-26	.....do.........	1	15	116	54	76½	29 15	21 18	7 57	72.8	27.2	2.61	3.58	3.6

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY SERGE—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
											Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.			Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
11.4	3,466	2–30	Worsted	1–26	Worsted	1	12	112	54	94	34 15	27 11	7 04	79.4	20.6	2.74	3.46	3.46
10.8	3,528	2–36	do	1–26	do	1	10	112	54	99	34 15	28 38	5 37	83.6	16.4	2.89	3.46	3.37
11.0	3,528	2–36	do	1–26	do	1	10	112	54	72¾	34 15	21 03	13 12	61.5	38.5	2.12	3.46	3.37
11.4	3,466	2–30	do	1–26	do	1	12	120	54	77	34 15	20 47	13 28	60.7	39.3	2.25	3.70	3.46
10.3	3,528	2–36	do	1–26	do	1	15	120	54	80	34 15	21 36	12 39	61.3	38.7	2.34	3.70	3.6
10.4	3,528	2–36	do	1–26	do	1	10	120	54	18½	11 00	5 00	6 00	45.5	54.5	1.68	3.70	3.37
11.3	3,466	2–30	do	1–26	do	1	8	120	54	94¼	34 15	25 27	8 48	74.3	25.7	2.75	3.70	3.27
11.8	3,466	2–30	do	1–26	do	1	12	120	54	77	40 30	20 47	19 43	51.3	48.7	1.58	3.70	3.4
11.6	3,466	2–30	do	1–26	do	1	11	118	54	74¼	34 15	20 23	13 52	59.5	40.5	2.17	3.64	3.41
11.4	3,466	2–30	do	1–26	do	1	8	120	54	73½	33 45	19 51	13 54	58.8	41.2	2.18	3.70	3.27
11.1	3,466	2–30	do	1–26	do	1	8	120	54	68	34 15	18 22	15 53	53.6	46.4	1.99	3.70	3.46
11.2	3,466	2–30	do	1–26	do	1	12	120	54	89¼	34 15	24 06	10 09	70.4	29.6	2.61	3.70	3.46
11.4	3,466	2–36	do	1–26	do	1	12	124	55	98¼	34 15	26 09	8 06	76.3	23.7	2.87	3.76	3.4
10.8	3,528	2–36	do	1–26	do	1	12	124	55	91	34 15	24 13	10 02	70.7	29.3	2.77	3.69	3.52
10.8	3,528	2–36	do	1–26	do	1	8	124	55	46¾	13 00	12 26	34	95.7	4.3	3.59	3.76	3.33
10.3	3,528	2–36	do	1–26	do	1	13	118	55	63	27 00	17 37	9 23	65.3	34.7	2.33	3.58	3.57
10.8	3.528	2–36	do	1–26	do	1	14	120	55	83¾	34 15	23 02	11 13	67.2	32.8	2.45	3.64	3.62
10.7	3,528	2–36	do	1–26	do	1	13	120	55	46	21 30	12 39	8 51	58.8	41.2	2.14	3.64	3.57
10.8	3,528	2–36	do	1–26	do	1	16	120	55	38	16 45	10 27	6 18	62.4	37.6	2.27	3.64	3.57
10.8	3,528	2–36	do	1–26	do	1	13	120	55	69½	34 15	19 07	15 08	55.8	44.2	2.03	3.64	3.57
10.6	3,528	2–36	do	1–26	do	1	13	120	55	84½	34 15	23 14	11 01	67.8	32.2	2.46	3.64	3.57
10.8	3,528	2–36	do	1–26	do	1	14	120	55	63	34 15	17 20	16 55	50.6	49.4	1.84	3.64	3.62
10.4	3,528	2–36	do	1–26	do	1	14	120	55	26	14 45	7 09	7 36	48.5	51.5	1.76	3.64	3.62
10.4	3,528	2–36	do	1–26	do	1	14	120	55	59	34 15	16 14	18 01	47.4	52.6	1.72	3.64	3.62
10.2	3,528	2–36	do	1–26	do	1	8	124	55	67½	27 15	17 58	9 17	65.9	34.1	2.48	3.76	3.33
10.6	3,528	2–36	do	1–26	do	1	14	120	55	81¼	29 15	22 20	6 55	76.4	23.6	2.78	3.64	3.62

PLAIN WORSTED.

MALE WEAVERS.

13.3	4,900	45/2	Worsted	45/2	Worsted	2	12	95	64	217	101 00	87 43	13 17	86.84	13.16	2.15	2.47	5.3
13.3	4,900	45/2	do	45/2	do	2	12	95	64	183	96 00	73 58	22 02	77.05	22.95	1.91	2.47	5.3
13.3	4,900	45/2	do	45/2	do	2	12	95	64	254	150 00	102 40	47 20	68.45	31.55	1.69	2.47	5.3
13.6	7,000	57/2	do	29/1	do	2	9	95	74	174	115 00	81 19	33 41	70.71	29.29	1.51	2.14	6.0
13.6	7,000	57/2	do	29/1	do	2	8	95	74	42	36 00	19 38	16 22	54.53	45.47	1.17	2.14	6.0
15.7	5,400	45/2	do	22/1	do	2	8	95	81	30	29 00	15 21	13 39	52.93	47.07	1.03	1.95	2.01
15.7	5,400	45/2	do	22/1	do	2	8	95	81	220	163 00	112 33	50 27	69.05	30.95	1.35	1.95	6.7
15.7	5,400	45/2	do	45/2	do	2	8	95	81	130	91 00	66 31	24 29	73.09	26.91	1.43	1.95	8.71
16.1	5,760	2/36	do	20/1	do	2	13	106	60	96½	40 40	32 46	7 54	83.6	16.4	2.37	2.94	5.6
13.6	4,464	2/32	do	2/32	do	2	8	106	72	73½	40 40	29 57	10 43	73.6	26.4	1.81	2.46	6.1
16.6	4,320	2/32	do	16/1	do	2	8	106	64	104	40 40	37 41	2 59	92.7	7.3	2.56	2.76	5.3
16.4	3,888	2/28	do	2/32	do	2	8	113	56	119½	40 40	35 32	5 08	87.4	12.6	2.94	3.36	4.7
18.4	3,744	2/24	do	12/1	do	2	8	113	56	72½	40 10	35 30	4 40	88.4	11.6	2.83	3.36	4.7
13.4	5,760	2/40	do	28/1	do	2	13	106	60	42	39 50	31 29	8 21	79.0	21.0	2.06	2.94	5.6
16.1	7,488	2/40	do	28/1	do	2	16	113	60	54	20 20	17 12	3 08	84.6	15.4	2.66	3.14	5.6
16.3	3,864	2/28	do	17/1	do	2	8	126	60	57	40 10	32 19	7 51	80.5	19.5	2.80	3.50	4.7
16.1	3,600	2/28	do	2/28	do	2	8	113	60	24	20 20	14 49	5 31	72.9	27.1	2.30	3.14	5.0
12.8	4,224	2/40	do	2/40	do	2	8	106	64	94	39 50	34 03	5 47	85.5	14.5	2.36	2.76	5.3
16.7	4,608	2/37	do	6	Woolen	3	8	106	72	81	40 40	33 01	7 39	81.2	18.8	1.99	2.45	6.1
16.7	4,608	2/37	do	6	do	3	8	106	72	94½	40 40	38 31	2 09	94.7	5.3	2.32	2.45	6.1
16.7	4,608	2/37	do	6	do	3	8	106	72	84	40 40	34 14	6 26	84.2	15.8	2.07	2.45	6.1
15.9	4,224	2/36	do	2/28	Worsted	2	8	106	60	103	39 20	34 59	4 21	88.9	11.1	2.62	2.94	5.0
15.9	4,224	2/36	do	2/28	do	2	8	120	60	109½	40 40	32 51	7 49	80.8	19.2	2.69	3.33	5.0
15.9	4,224	2/36	do	2/28	do	2	8	106	60	107	40 40	33 27	7 13	82.3	17.7	2.63	2.94	5.0
16.2	4,608	2/36	do	18/1	do	2	8	106	68	96	40 40	32 05	8 35	78.9	21.1	2.36	2.60	5.7
16.2	4,608	2/36	do	18/1	do	2	8	106	68	94	40 40	36 18	4 22	89.2	10.8	2.07	2.60	5.7
16.9	6,912	2/41	do	25/1	do	2	13	113	76	81½	40 40	32 53	7 47	80.1	19.9	2.00	2.48	7.1
15.7	5,520	2/41	do	25/1	do	2	8	106	80	40½	39 50	33 18	6 32	83.6	16.4	1.77	2.21	6.9
15.1	5,280	2/36	do	25/1	do	2	10	106	80	84½	40 40	38 16	2 24	94.1	5.9	2.08	2.21	7.4
15.1	5,280	2/41	do	25/1	do	2	10	106	80	71½	40 40	32 23	8 17	79.6	20.4	1.76	2.21	7.4
15.1	5,280	2/41	do	25/1	do	2	10	113	80	71½	39 10	30 22	8 48	77.5	22.5	1.83	2.35	7.4
15.1	5,280	2/41	do	25/1	do	2	10	113	80	84	40 40	35 41	4 59	87.7	12.3	2.07	2.35	7.4
15.1	5,280	2/41	do	25/1	do	2	10	113	80	79½	40 40	33 46	6 54	83.0	17.0	1.95	2.35	7.4
15.1	5,280	2/41	do	25/1	do	2	10	113	80	80½	40 40	34 11	6 29	84.1	15.9	1.98	2.35	7.4
15.1	5,280	2/41	do	25/1	do	2	10	106	80	82	40 40	37 08	3 32	91.3	8.7	2.02	2.21	7.4
15.1	5,280	2/41	do	25/1	do	2	10	113	80	84½	40 40	35 53	4 47	88.3	11.7	2.10	2.35	7.4
19.6	3,864	2/28	do	3½	Woolen	3	8	113	56	106½	40 40	31 40	9 00	77.9	22.1	2.62	8.36	4.7
14.5	3,864	2/32	do	17/1	Worsted	2	8	113	56	57	40 10	33 12	6 58	82.7	17.3	2.69	3.36	4.7
16.1	7,488	2/40	do	28/1	do	2	16	106	60	98	40 40	32 41	7 59	80.37	19.63	2.41	2.94	5.6
16.1	7,488	2/40	do	28/1	do	2	16	113	60	96½	40 40	30 44	9 56	75.6	24.4	2.37	3.14	5.6
16.7	4,608	2/37	do	6	Woolen	3	8	113	72	81½	40 40	31 10	9 30	76.6	23.4	2.00	2.62	6.1
16.7	4,608	2/37	do	6	do	3	8	106	72	80	40 40	32 36	8 04	81.0	19.0	1.97	2.45	6.1
16.7	4,608	2/37	do	6	do	3	8	106	72	82½	40 40	33 37	7 03	82.7	17.3	2.03	2.45	6.1
16.7	4,608	2/37	do	6	do	3	8	113	72	90	40 40	34 25	6 15	84.6	15.4	2.21	2.62	6.1
16.7	4,608	2/37	do	6	do	3	8	113	72	86	40 40	32 53	7 47	80.8	19.2	2.11	2.62	6.1
16.7	4,608	2/37	do	6	do	3	8	106	72	88	40 40	35 52	4 48	88.2	11.8	2.16	2.45	6.1
16.7	4,608	2/37	do	6	do	3	8	113	72	96	40 40	36 42	3 58	90.2	9.8	2.40	2.62	6.1

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN WORSTED—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.9	2,880	2/24	Worsted	1/12	Woolen	3	16	96	42	87	40 50	22 50	18 00	55.9	44.1	2.13	3.81	3.42
15.7	2,592	2/20	do	1/10	do	3	16	100	42	118½	40 50	29 52	10 58	73.1	26.9	2.90	3.97	3.42
13.7	2,800	2/24	do	1/14	do	3	16	100	46	55	40 50	15 11	25 39	37.2	62.8	1.35	3.62	3.74
20.9	4,608	2/28	do	11/1	do	2	6	106	58	108	40 40	35 28	5 12	87.2	12.8	2.66	3.05	4.9
14.5	5,760	2/40	do	22/1	Worsted	2	13	113	62	67¼	39 40	31 24	8 16	79.2	20.8	2.38	3.04	5.7
14.5	5,760	2/40	do	22/1	do	2	13	113	62	90	39 20	34 44	4 36	88.3	11.7	2.69	3.14	5.7
16.3	3,888	2/28	do	1/15	do	3	12	108	56	17½	14 30	5 26	9 04	37.5	62.5	1.21	3.21	4.51
17.0	3,850	2/28	do	1/16	do	3	8	108	56	82½	49 15	25 40	23 35	52.1	47.9	1.68	3.21	4.51
15.0	3,808	2/28	do	1/18	do	3	8	108	56	92	49 15	28 37	20 38	58.1	41.9	1.87	3.21	4.51
15.2	3,808	2/28	do	1/18	do	3	12	108	56	90½	47 15	28 10	19 05	56.6	40.4	1.92	3.21	4.51
15.0	4,080	2/32	do	2/34	do	3	12	108	58	86½	35 00	27 52	7 08	79.6	20.4	2.47	3.10	4.62
17.0	3,840	2/28	do	1/16	do	3	8	106	60	44	18 30	14 56	3 34	80.7	19.3	2.38	2.94	4.73
17.5	8,640	2-50	do	2-50	do	6	24	90	70	58	42 10	27 04	15 06	64.2	35.8	1.38	2.14	16.1
17.5	8,640	2-48	do	2-48	do	6	20	106	70	39	42 10	15 27	26 43	36.6	63.4	.92	2.52	15.0
17.5	8,640	2-48	do	2-48	do	6	20	106	70	46	25 30	18 14	7 16	71.5	28.5	1.80	2.52	15.0
16.1	7,040	2-50	do	2-50	do	5	18	106	80	79	42 10	35 46	6 24	84.8	15.2	1.87	2.21	14.6
12.9	2,880	2/24	do	1/12	do	3	12	110	42	85½	40 50	19 35	21 15	48.0	52.0	2.09	4.37	3.42
14.6	3,404	2/24	do	1/15	do	3	22	96	44	83	37 50	22 49	15 01	60.3	39.7	2.19	3.64	3.58
15.1	2,800	2/22	do	1/12	do	3	11	96	46	76	40 50	21 51	18 59	53.5	46.5	1.86	3.48	3.74
11.65	3,868	2/38	do	2/38	do	5	12	100	53	140½	47 45	44 41	3 04	93.6	6.4	2.94	3.14	9.46
17.98	6,990	2/38	do	2/38	do	5	15	100	54	67½	29 35	21 52	7 43	73.9	26.1	2.28	3.09	9.57
18.35	7,080	2/39	do	2/39	do	5	15	100	54	51	20 20	16 31	3 49	81.2	18.8	2.51	3.09	9.57
12.15	4,020	2/38	do	2/40	do	5	11	100	55	24	10 30	7 55	2 35	75.4	24.6	2.29	3.03	9.68
18.3	4,248	2/30	do	2/28	do	3	4	112	56	103	40 40	30 54	9 46	76.0	24.0	2.53	3.33	4.77
18.0	4,248	2/30	do	2/28	do	3	4	112	56	107½	40 00	32 15	7 45	80.6	19.4	2.69	3.33	4.77
18.2	4,248	2/30	do	2/28	do	3	8	112	56	38	14 30	11 24	3 06	78.6	21.4	2.62	3.33	4.77
18.2	4,248	2/30	do	2/28	do	3	8	112	56	111½	40 40	34 04	6 36	83.8	16.2	2.74	3.27	5.04

18.0	4,284	2/30	do	2/28	do	3	8	108	58	185	81 20	59 37	21 43	73.3	26.7	2.27	3.10	5.36
17.0	3,660	2/30	do	2/28	do	3	8	110	58	106½	39 40	33 41	5 59	84.9	15.1	2.68	3.16	5.25
14.0	4,368	2/40	do	2/40	do	3	8	108	60	88	38 30	29 20	9 10	76.2	23.8	2.29	3.00	5.54
13.5	4,104	2/40	do	1/20	do	3	12	108	62	67	25 30	23 05	2 25	90.5	9.5	2.63	2.90	5.73
13.0	3,936	2/40	do	1/20	do	3	8	108	62	52	24 20	17 55	6 25	73.6	26.4	2.14	2.90	5.78
13.5	4,104	2/40	do	2/40	do	3	4	112	62	96	38 30	31 33	6 57	81.9	18.1	2.47	3.01	5.04
13.5	4,104	2/40	do	2/40	do	3	4	112	62	140	59 40	46 30	13 10	77.9	22.1	2.35	3.01	5.04
13.5	4,104	2/40	do	2/40	do	3	4	112	62	193½	81 20	64 16	17 04	79.0	21.0	2.38	3.01	5.04
13.5	4,104	2/40	do	2/40	do	3	4	112	62	99	40 40	32 53	7 47	80.9	19.1	2.46	3.01	5.04
13.4	4,104	2/40	do	2/40	do	3	4	112	62	79½	30 30	26 24	4 06	86.1	13.9	2.33	3.01	5.04
13.4	4,104	2/40	do	2/40	do	3	8	112	62	30½	17 10	13 07	4 03	76.4	23.6	2.30	3.01	5.04
13.4	4,104	2/40	do	2/40	do	3	4	112	60	69	28 20	22 55	5 25	80.9	19.1	2.44	3.01	5.04
13.2	3,986	2/40	do	1/20	do	3	8	110	62	91½	40 40	30 56	9 44	76.1	23.9	2.25	2.96	5.46
13.0	4,062	2/40	do	1/20	do	3	8	108	60	40½	24 10	17 03	7 07	70.6	29.4	2.05	2.90	5.73
13.0	4,062	2/40	do	1/20	do	3	8	108	60	80	37 30	27 34	9 56	73.5	26.5	2.18	2.90	5.78
13.0	4,104	2/40	do	1/20	do	3	12	108	60	66½	29 20	22 55	6 25	78.1	21.9	2.27	2.90	5.73
14.6	4,412	2/40	do	2/40	do	3	8	112	64	80½	40 40	30 41	9 59	75.5	24.5	2.20	2.92	5.25
14.3	4,412	2/40	do	2/40	do	3	8	110	64	100	40 10	34 55	5 15	86.9	13.1	2.49	2.86	5.67
13.8	4,640	2/40	do	2/40	do	3	11	110	64	48	23 06	16 40	5 14	76.2	23.8	2.18	2.86	5.67
14.4	4,412	2/40	do	2/40	do	3	8	110	64	98½	40 40	34 23	6 17	84.6	15.4	2.42	2.86	5.67
14.4	4,412	2/40	do	2/40	do	3	8	110	64	98	40 30	32 28	8 02	80.2	19.8	2.30	2.86	5.67
14.0	4,420	2/40	do	2/40	do	3	16	110	64	49½	22 20	17 17	5 03	77.4	22.6	2.23	2.86	5.67
14.0	4,420	2/40	do	2/40	do	3	20	110	64	77½	39 30	27 03	12 27	68.5	31.5	1.96	2.86	5.67
14.5	4,412	2/40	do	2/40	do	3	8	110	64	91½	40 40	31 56	8 44	78.5	21.5	2.25	2.86	5.67
14.4	4,412	2/40	do	2/40	do	3	8	110	64	98	40 40	32 28	8 12	79.8	20.2	2.29	2.86	5.67
18.0	4,260	2/32	do	2/32	do	3	8	108	64	50	26 20	17 47	8 33	67.5	32.5	1.90	2.81	5.98
12.0	4,796	2/50	do	2/50	do	3	8	110	68	49	22 30	18 10	4 20	80.8	19.2	2.18	2.70	5.98
12.2	4,796	2/50	do	2/50	do	3	8	110	68	50	24 20	18 33	5 47	76.2	23.8	2.05	2.70	5.98
12.2	4,796	2/50	do	2/50	do	3	8	110	68	60½	28 20	22 26	5 54	79.2	20.8	2.14	2.70	5.98
14.0	4,356	2/40	do	2/40	do	3	8	108	68	87	40 40	32 52	7 48	80.8	19.2	2.14	2.65	6.28
16.0	4,800	2/40	do	2/40	do	3	8	112	70	87½	40 40	32 49	7 51	80.7	19.3	2.15	2.67	5.77
16.2	4,800	2/40	do	2/40	do	3	8	112	70	80½	40 40	30 11	10 29	74.2	25.8	1.98	2.67	5.77
16.2	4,800	2/40	do	2/40	do	3	8	112	70	183	81 20	68 37	12 43	84.4	15.6	2.25	2.67	5.77
16.0	4,800	2/40	do	2/40	do	3	8	112	70	67½	33 40	25 19	8 21	75.2	24.8	2.00	2.67	5.77
16.2	4,800	2/40	do	2/40	do	3	8	112	70	188	81 20	70 30	10 50	86.7	13.3	2.31	2.67	5.77
16.2	4,800	2/40	do	2/40	do	3	8	112	70	87	40 40	32 37	8 03	80.2	19.8	2.14	2.67	5.77
16.2	4,800	2/40	do	2/40	do	3	8	112	70	91½	40 40	34 19	6 21	84.4	15.6	2.25	2.67	5.77
16.2	4,800	2/40	do	2/40	do	3	8	112	70	79½	36 40	29 49	6 51	81.3	18.7	2.17	2.67	5.77
16.0	4,800	2/40	do	2/40	do	3	8	112	70	85	40 40	31 52	8 48	78.4	21.6	2.09	2.67	5.77
16.2	4,800	2/40	do	2/40	do	3	8	110	70	43	21 00	16 25	4 35	78.2	21.8	2.05	2.62	6.19
16.0	4,800	2/40	do	2/40	do	3	8	110	70	62½	29 40	23 52	5 48	80.4	19.6	2.11	2.62	6.19
16.0	4,800	2/40	do	2/40	do	3	8	110	70	91	40 10	34 45	5 25	86.5	13.5	2.27	2.62	6.19
16.2	4,761	2/40	do	2/40	do	3	15	110	70	49	23 00	18 43	4 17	81.3	18.7	2.13	2.62	6.19
16.0	4,800	2/40	do	2/40	do	3	8	110	70	84½	40 40	32 16	8 24	79.3	20.7	2.08	2.62	6.19
11.0	5,424	2/60	do	2/60	do	3	8	108	72	83	40 40	33 12	7 28	81.6	18.4	2.04	2.50	6.65
14.3	5,416	2/50	do	2/50	do	3	8	110	76	77½	40 40	32 08	8 32	79.0	21.0	1.91	2.41	6.82
13.5	6,528	2/60	do	2/60	do	3	8	110	82	80	40 40	35 47	4 53	80.0	20.0	1.97	2.24	7.38
13.5	6,528	2/60	do	2/60	do	3	8	108	84	67	40 40	32 12	8 28	79.2	20.8	1.65	2.14	7.76
11.7	3,072	2-40	do	1-4	Woolen	4	10	110	38	45½	14 30	9 29	5 01	65.4	34.6	3.16	4.82	7.0
11.7	3,136	2-50	do	1-4	do	4	10	110	38	25½	11 25	5 14	6 11	45.8	54.2	2.21	4.82	8.0
12.4	2,456	2-40	do	1-4	do	4	8	110	44	77½	27 20	18 36	8 44	68.0	32.0	2.84	4.17	7.75
12.1	3,456	2-50	do	1-4	do	4	11	108	44	72	26 10	17 36	8 34	67.3	32.7	2.75	4.09	7.75
12.2	3,564	2-50	do	1-4	do	4	13	108	44	53	25 10	12 58	12 12	51.5	48.5	2.11	4.09	7.75

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN WORSTED—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
											Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.			Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
11.7	3,456	2-48	Worsted	1-4	Woolen	4	8	108	44	74½	18 50	18 09	41	96.4	3.6	3.94	4.09	7.75
12.8	3,840	2-50	do	1-4½	do	4	8	108	48	52¾	25 50	14 04	11 46	54.5	45.5	2.04	3.75	8.25
12.9	3,840	2-50	do	1-4½	do	4	12	108	48	37	21 00	9 52	11 08	47.0	53.0	1.76	3.75	8.25
10.8	3,456	2-40	do	2-40	Worsted	4	10	108	56	40	20 10	12 26	7 44	61.7	38.3	1.98	3.21	10.40
10.8	3,450	2-40	do	2-40	do	5	10	108	56	70½	28 25	21 52	6 33	76.9	23.1	2.47	3.21	10.40
10.9	3,456	2-40	do	2-40	do	4	10	108	56	56	27 55	17 25	10 30	62.4	37.6	2.01	3.21	10.40
12.07	3,640	2-40	do	2-40	do	4	8	110	58	47	20 10	14 52	5 18	73.7	26.3	2.33	3.16	10.34
11.07	3,840	2-40	do	2-40	do	4	8	110	58	53¾	24 15	17 00	7 15	70.1	29.9	2.22	3.16	10.84
18.0	5,440	2-40	do	2-40	do	4	16	110	72	47½	39 20	18 39	20 41	47.4	52.6	1.21	2.55	12.98
17.4	4,032	2-30	do	5½	Woolen	3	8	96	60	91	42 10	34 07	8 03	80.9	19.1	2.16	2.67	11.8
13.0	4,032	2-40	do	7½	do	3	12	96	60	63	41 10	23 37	17 33	57.4	42.6	1.53	2.67	11.8
17.4	4,032	2-30	do	5½	do	3	10	85	60	43	21 20	18 13	3 07	85.4	14.6	2.02	2.36	11.8
17.0	4,320	2-30	do	2-30	Worsted	3	12	106	60	23	11 00	7 49	3 11	71.0	29.0	2.09	2.94	10.9
13.0	4,032	2-40	do	7½	Woolen	3	8	90	60	33	22 50	13 12	9 38	57.8	42.2	1.45	2.50	11.8
13.0	4,032	2-40	do	2-40	Worsted	4	8	90	62	53	27 40	21 55	5 45	79.2	20.8	1.92	2.42	11.7
14.2	3,864	2-40	do	2-42	do	3	8	106	62	111	42 10	38 57	3 13	92.4	7.6	2.63	2.85	11.2
13.0	4,032	2-40	do	2-40	do	4	8	106	62	95	42 10	33 20	8 50	79.1	20.9	2.25	2.85	11.2
13.0	4,032	2-40	do	2-40	do	4	8	106	62	74	31 50	25 58	5 52	81.6	18.4	2.32	2.85	11.2
13.4	4,320	2-42	do	2-42	do	3	8	85	64	79	40 00	35 41	4 19	89.2	10.8	1.98	2.21	7.7
13.4	4,320	2-42	do	2-42	do	3	8	85	66	77	40 00	35 53	4 07	89.7	10.3	1.93	2.15	7.9
13.4	4,320	2-42	do	2-42	do	3	8	112	66	214	84 20	75 40	8 40	89.7	10.3	2.56	2.83	6.8
13.4	4,320	2-40	do	2-40	do	3	8	85	66	153	81 20	71 17	10 03	87.6	12.4	1.87	2.15	7.9
13.4	4,320	2-42	do	2-42	do	3	8	85	66	75	42 10	34 56	7 14	82.9	17.1	1.78	2.15	7.9
13.4	4,320	2-42	do	2-42	do	3	8	85	66	76	42 10	35 25	6 45	84.0	16.0	1.80	2.15	11.3
13.4	4,320	2-42	do	2-42	do	3	8	112	66	135	65 20	47 44	17 36	73.1	26.9	2.13	2.83	6.8
13.4	4,320	2-42	do	2-42	do	3	8	112	66	92	42 10	32 32	9 38	77.1	22.9	2.18	2.83	6.8

13.4	4,320	2-42	do	2-42	do	3	8	112	66	93	42 10	32 53	9 17	78.0	22.0	2.21	2.83	6.8
14.1	4,320	2-38	do	2-38	do	3	8	106	68	183	84 20	70 26	13 54	83.5	16.5	2.21	2.60	7.0
14.1	4,320	2-38	do	2-38	do	3	8	85	68	70	42 10	33 36	8 34	79.7	20.3	1.66	2.08	8.2
14 1	4,320	2-38	do	2-42	do	3	8	106	68	168	84 20	64 40	19 40	76.7	23.3	1.99	2.60	7.0
14.1	4,320	2-38	do	2-42	do	3	8	106	68	179	85 00	68 54	16 06	81.1	18.9	2.09	2.60	7.0
16.4	7,920	2-50	do	2-42	do	4	12	96	56	51	28 00	17 51	10 09	63.8	36.2	1.82	2.86	11.8
13.2	7,260	2-50	do	2-50	do	3	24	96	56	33½	42 10	11 44	30 26	27.8	72.2	.79	2.86	13.3
13.2	7,260	2-50	do	2-50	do	3	24	96	56	48	42 10	16 48	25 22	39.8	60.2	1.14	2.86	13.3
15 0	7,260	2-48	do	2-48	do	3	26	90	56	44	20 10	16 26	8 44	81.5	18.5	2.18	2.68	11 8
16.2	7,260	2-50	do	2-50	do	3	24	106	56	54	37 20	17 07	20 13	45.9	54.1	1.45	3.15	12.8
17.0	7,260	2-48	do	2-48	do	3	24	106	56	79	42 10	25 02	17 08	59.4	40.6	1.87	3.15	12.8
16.2	7,260	2-48	do	2-48	do	3	24	106	56	74	42 10	28 28	18 42	55.6	44.4	1.76	3.15	12.8
16.4	7,920	2-40	do	2-40	do	3	26	90	56	35	20 20	13 04	7 16	64.3	35.7	1.72	2.68	12.7
15.0	7,260	2-48	do	2-48	do	3	26	90	56	38	18 50	14 11	4 39	75.3	24.7	2.02	2.68	11.8
16.4	7,920	2-48	do	2-40	do	3	26	90	58	78	42 10	30 10	12 00	71.5	28.5	1.85	2.59	13.5
16.4	7,920	2-48	do	2-40	do	3	26	90	58	18	11 00	6 58	4 02	63.3	36.7	1.64	2.59	13.5
12.6	3,840	2-38	do	2-38	do	3	10	85	60	81	42 10	34 19	7 51	81.4	18.6	1.92	2.36	11.8
12.6	3,840	2-38	do	2-38	do	3	10	106	60	62	32 50	21 04	11 46	64.1	35.9	1.89	2.94	10.9
18.1	7,680	2-50	do	2-32	do	5	16	106	60	87	18 00	12 34	5 26	69.8	30.2	2.06	2.94	12.4
18.1	7,680	2-48	do	2-32	do	5	16	106	60	20	12 00	6 47	5 13	56.6	43.4	1.67	2.94	11.9
12.2	5,000	2-48	do	2-40	do	5	12	106	62	48	22 40	16 51	5 49	74.3	25.7	2.12	2.85	11.7
12.2	4,320	2-50	do	2-42	do	3	12	106	62	60	35 20	21 04	14 16	59.6	40.4	1.70	2.85	11.2
12.2	4,800	2-48	do	2-42	do	5	12	106	62	29	13 00	10 11	2 49	78.3	21.7	2.23	2.85	11.7
12.2	5,600	2-48	do	2-42	do	5	14	106	62	54	38 10	18 57	19 13	49.7	50.3	1.41	2.85	12.7
12.2	5,250	2-48	do	2-40	do	3	12	90	62	32	21 50	13 14	8 36	60.6	39.4	1.47	2.42	12.3
13.2	4,224	2-40	do	2-40	do	3	12	90	64	67	42 10	28 35	13 35	67.8	32.2	1.59	2.34	12.5
13.2	4,224	2-40	do	2-40	do	1	12	85	64	70	42 10	31 37	10 33	75.0	25.0	1.66	2.21	12.5
13.2	4,554	2-40	do	2-40	do	3	12	106	64	81	42 10	29 20	12 50	69.6	30.4	1.92	2.76	11.5
13.2	4,220	2-40	do	2-40	do	4	12	112	64	77	38 40	26 24	12 16	68.3	31.7	1.99	2.92	11.0
13.2	4,220	2-40	do	2-40	do	4	12	106	64	37	23 20	13 24	9 56	57.4	42.6	1.59	2.76	11.0
13.2	4,032	2-40	do	2-40	do	5	8	96	66	56	42 10	23 06	19 04	54.8	45.2	1.33	2.42	13.3
13.2	4,032	2-40	do	2-40	do	3	8	90	66	80	42 10	35 12	6 58	83.5	16.5	1.90	2.27	12.8
13.2	3,528	2-40	do	2-40	do	5	8	90	66	71	39 40	31 14	8 26	78.8	21.2	1.79	2.27	12.8
13.6	4,032	2-40	do	2-40	do	5	8	85	66	64	37 10	29 49	7 21	80.2	19.8	1.72	2.15	13.3
17.4	4,032	2-32	do	5½	do	3	8	90	66	26	22 50	11 26	11 24	50.8	49.2	1.16	2.27	13.8
13.2	4,032	2-40	do	2-40	do	3	8	106	66	87	42 10	32 30	9 40	77.1	22.9	2.06	2.68	11.3
13.2	4,032	2-40	do	2-40	do	3	8	106	66	88	42 10	32 53	9 17	78.0	22.0	2.09	2.68	11.3
13.2	3,808	2-40	do	2-40	do	5	8	112	66	91	42 10	32 10	10 00	76.3	23.7	2.16	2.83	12.3
13.6	4,032	2-40	do	2-40	do	5	8	106	66	67	40 10	25 02	15 08	62.3	37.7	1.67	2.68	12.3
17.0	4,320	2-30	do	2-30	do	3	12	106	66	62	28 50	23 10	5 40	80.3	19.7	2.15	2.68	10.9
15.3	2,950	2/24	do	2/24	do	2	11	120	44	216	74 50	47 31	27 19	63.4	36.6	2.89	4.55	3.8
15.3	2,950	2/24	do	2/24	do	2	14	120	44	188½	68 40	41 28	27 12	60.1	39.9	2.75	4.55	3.8
10.6	3,690	2/36 2/60	do	1/20	do	2	10	130	52	160	55 20	38 24	16 56	69.4	30.6	2.89	4.17	4.0
10.7	3,690	2/36 2/60	do	1/20	do	2	10	130	52	148½	46 40	35 10	11 30	75.0	25.0	3.18	4.17	4.0
10.6	3,690	2/36 2/60	do	1/20	do	2	10	130	52	68	25 50	16 32	9 18	64.0	36.0	2.63	4.17	4.0
10.6	3,690	2/36 2/60	do	1/20	do	2	10	130	52	109	40 40	26 10	14 30	64.3	35.7	2.67	4.17	4.0
10.8	3,690	2/36 4/80	do	1/20	do	2	10	130	52	60	32 00	14 24	17 36	45.0	55.0	1.87	4.17	4.0

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN WORSTED—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
10.6	3,690	2/36 2/60	Worsted	1/20	Worsted	2	10	130	52	121	40 40	29 24	11 16	72.3	27.7	2.96	4.17	4.0
13.5	7,630	2/36 2/40	do	1/28	do	2	12	130	56	31	13 40	8 08	5 32	59.5	40.5	2.27	3.87	4.1
10.6	3,690	2/36 2/60	do	1/20	do	2	10	130	56	123	40 40	31 47	8 53	78.2	21.8	3.01	3.87	4.0
15.4	3,220	2/26	do	1/60	do	3	18	104	48	74	40 40	20 29	20 11	50.4	49.6	1.82	3.61	4.57
15.6	3,237	2/26 1/16	do do	1/13 1/60	do do	3	15	104	48	54⅜	19 40	15 05	4 35	76.7	23.3	2.77	3.61	4.59
15.7	3,852	2/16	do	1/12	do	4	20	104	48	159¼	55 40	44 06	11 34	79.2	20.8	2.86	3.61	5.49
15.6	3,456	2/18 1/12	do	1/13 1/16	do	3	12	104	48	55	19 50	15 14	4 36	76.8	23.2	2.77	3.61	4.59
15.9	3,456	2/18	do	1/13	do	3	11	104	48	108½	38 40	30 03	8 37	77.7	22.3	2.81	3.61	4.59
17.1	3,230	2/23	do	1/12½	do	3	19	104	48	123¼	40 10	34 08	6 02	84.9	15.1	3.07	3.61	4.59
15.9	3,240	2/26 1/45	do do	1/13 1/60	do do	4	12	104	48	26¾	11 40	7 25	4 15	63.6	36.4	2.29	3.61	4.59
17.0	2,976	2/21	do	1/12½	do	3	17	106	50	129½	50 40	36 39	14 01	72.3	27.7	2.56	3.53	4.78
16.0	3,240	2/26	do	1/13½	do	4	16	106	50	106½	40 40	30 08	10 32	74.1	25.9	2.62	3.53	4.78
16.9	2,944	2/21	do	1/12½	do	3	11	106	50	22½	10 10	6 22	3 48	62.6	37.4	2.21	3.53	4.78
16.5	2,888	2/21	do	1/12½	do	3	14	106	50	96	35 30	27 10	8 20	76.5	23.5	2.70	3.53	4.78
16.5	3,024	2/21	do	1/12½	do	4	16	104	50	126¼	55 00	36 25	18 35	66.2	33.8	2.30	3.41	4.78
15.6	3,300	2/26	do	1/13½	do	4	14	106	50	98¾	36 30	27 57	8 33	76.6	23.4	2.71	3.53	4.78
15.5	3,276	2/26	do	1/13½	do	3	20	106	50	40½	15 10	11 28	3 42	75.6	24.4	2.67	3.53	4.78
16.0	3,255	2/26	do	1/13½	do	3	12	106	50	86	35 30	24 20	11 10	68.5	31.5	2.42	3.53	4.78
15.5	3,240	2/26	do	1/13½	do	4	14	106	50	18¼	10 10	5 10	5 00	50.8	49.2	1.80	3.53	4.78
16.1	3,105	2/21	do	1/12½	do	4	12	106	50	99¾	40 40	28 14	12 26	69.4	30.6	2.45	3.53	4.78

16.4	2,888	2/21	.....do..........	1/12¾	.....do..........	3	14	106	50	29	11 40	8 13	3 27	70.4	29.6	2.49	3.53	4.78
14.8	3,240	2/28	.....do..........	1/14¾	.....do..........	4	20	104	50	80¾	40 40	23 13	17 27	57.1	42.9	1.98	3.47	4.78
15.5	3,240	2/18	.....do..........	1/13	.....do..........	4	20	104	50	115½	40 40	33 14	7 26	81.7	18.3	2.83	3.47	4.78
14.6	3,136	2/28	.....do..........	1/14½	.....do..........	4	21	104	50	91¾	40 40	26 24	14 16	64.9	35.1	2.25	3.47	4.78
14.5	3,240	2/28	.....do..........	1/14¾	.....do..........	4	10	106	50	240½	81 20	68 04	13 16	83.7	16.3	2.96	3.53	4.78
14.6	3,240	2/28	.....do..........	1/14¾	.....do..........	4	12	104	50	99¾	37 30	28 42	8 48	76.5	23.5	2.65	3.47	4.78
15.1	3,264	2/28	.....do..........	1/14½	.....do..........	3	14	106	50	86½	39 00	24 29	14 31	62.8	37.2	2.22	3.53	4.78
14.7	3,264	2/28	.....do..........	1/14½	.....do..........	4	11	104	50	84	40 10	24 14	15 56	60.3	39.7	2.09	3.47	4.78
15.4	3,240	2/18	.....do..........	1/18	.....do..........	3	20	104	50	58	22 00	16 44	5 16	76.1	23.9	2.64	3.47	4.78
14.5	3,234	2/28	.....do..........	1/14½	.....do..........	3	15	104	50	41	18 00	11 50	6 10	65.7	34.3	2.28	3.47	4.78
14.1	3,240	2/28	.....do..........	1/14½	.....do..........	4	12	104	50	26	10 10	7 30	2 40	73.8	26.2	2.56	3.47	4.78
15.4	3,240	2/18	.....do..........	1/13	.....do..........	3	20	104	50	56	19 50	16 09	3 41	84.2	15.8	2.82	3.47	4.78
15.7	3,216	2/26	.....do..........	1/13¾	.....do..........	4	12	106	52	60¾	25 20	17 49	7 31	70.3	29.7	2.39	3.40	4.98
15.5	3,276	2/26	.....do..........	1/13½	.....do..........	3	19	104	52	46¼	20 20	13 53	6 27	68.3	31.7	2.27	3.33	4.98
15.8	3,276	2/26	.....do..........	1/13¾	.....do..........	3	19	104	52	62	25 20	18 36	6 44	73.4	26.6	2.45	3.33	4.98
15.8	3,240	2/26	.....do..........	1/13½	.....do..........	3	13	106	52	23	10 10	6 47	3 23	66.7	33.3	2.30	3.40	4.98
15.7	4,224	2/27	.....do..........	1/14	.....do..........	4	16	106	52	58½	25 20	17 13	8 07	68.0	32.0	2.30	3.40	4.98
16.0	3,276	2/26	.....do..........	1/13½	.....do..........	4	19	106	52	96½	40 40	28 24	12 16	69.8	30.2	2.37	3.40	4.98
15.3	4,224	2/27	.....do..........	1/14	.....do..........	4	16	106	52	19	11 40	5 35	6 05	47.9	52.1	1.63	3.40	4.98
15.2	3,276	2/26	.....do..........	1/13½	.....do..........	3	22	106	52	63¾	28 30	18 41	4 49	79.5	20.5	2.70	3.40	4.98
16.2	3,456	2/27	.....do..........	1/14	.....do..........	3	20	104	52	75½	29 10	21 45	7 25	74.6	25.4	2.58	3.33	4.98
15.5	3,960	2/27	.....do..........	1/14	.....do..........	3	17	104	52	79¾	34 00	23 51	10 09	70.1	29.9	2.34	3.33	4.98
14.6	3,220	2/28	.....do..........	1/14¾	.....do..........	4	11	104	52	180¾	81 20	54 14	27 06	66.7	33.3	2.22	3.33	5.98
14.6	3,240	2/28	.....do..........	1/14½	.....do..........	4	16	104	52	52¾	24 10	15 45	8 25	64.7	35.3	2.16	3.33	4.98
14.6	3,240	2/28	.....do..........	1/14¾	.....do..........	4	16	104	52	66	30 30	19 48	10 42	64.9	35.1	2.16	3.33	4.98
14.6	3,240	2/28	.....do..........	1/14½	.....do..........	4	18	104	52	91	40 40	27 18	13 22	67.1	32.9	2.24	3.33	4.98
15.1	3,600	2/28	.....do..........	1/16	.....do..........	4	19	104	58	46	25 20	15 23	9 57	60.7	39.3	1.82	2.99	5.55
16.3	3,600	2/28	.....do..........	1/16	.....do..........	4	10	104	58	71	30 50	25 06	5 44	81.4	18.6	2.30	2.99	5.55
16.0	3,600	2/28	.....do..........	1/16	.....do..........	4	19	104	58	74	37 45	24 46	12 59	65.6	34.4	1.96	2.79	5.55
12.1	3,218	2/30	.....do..........	1/20	.....do..........	4	19	106	58	63½	25 20	20 46	4 34	82.0	18.0	2.50	3.05	5.55
15.8	3,976	2/28	.....do..........	1/16	.....do..........	4	16	104	58	30	13 40	10 02	3 38	73.4	26.6	2.20	2.99	5.55
15.5	3,618	2/28	.....do..........	1/16	.....do..........	3	11	104	58	43	17 30	14 23	3 07	82.2	17.8	2.46	2.99	5.55
13.2	3,850	1/36 1/32 2/32	.....do.......... .....do.......... .....do..........	1/22	.....do..........	3	16	106	60	19½	9 10	6 37	2 33	72.2	27.8	2.13	2.94	5.74
13.3	3,780	1/36 1/32 2/32	.....do.......... .....do.......... .....do..........	1/22	.....do..........	3	14	106	60	28½	16 10	9 35	6 35	59.3	40.7	1.75	2.94	10.77
14.3	4,620	2/36 2/26	.....do.......... .....do..........	1/22	.....do..........	3	22	106	60	51	23 20	17 19	6 01	74.2	25.8	2.19	2.94	5.74
12.5	3,584	1/36 1/32	.....do.......... .....do..........	1/26	.....do..........	4	14	104	60	17	12 40	5 53	6 47	46.4	53.6	1.34	2.89	5.74
12.0	3,605	1/36 1/32	.....do.......... .....do..........	1/26	.....do..........	3	15	106	60	38½	20 20	12 59	7 21	63.9	36.1	1.88	2.94	5.74
13.0	4,032	1/36 1/32 2/32	.....do.......... .....do.......... .....do..........	1/22	.....do..........	3	16	106	60	28½	18 20	9 41	8 39	52.8	47.2	1.55	2.94	10.77
13.0	3,920	1/36 1/32 2/32	.....do.......... .....do.......... .....do..........	1/22	.....do..........	3	14	106	60	25½	22 20	8 45	13 35	39.2	60.8	1.15	2.94	10.77
13.0	3,780	1/36 1/32 2/32	.....do.......... .....do.......... .....do..........	1/22	.....do..........	3	15	106	60	29½	13 20	10 01	3 19	75.1	24.9	2.21	2.94	10.77

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN WORSTED—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time— Loom was producing.	Actual time— Lost in stoppages.	Per cent of total time— Loom was producing.	Per cent of total time— Lost in stoppages.	Yards woven per hour— Of total time.	Yards woven per hour— Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
12.8	4,032	1/36 1/32 2/32	Worsted do. do.	1/22	Worsted	3	13	106	60	30	19 20	10 11	9 00	52.7	47.3	1.55	2.94	10.77
12.1	3,600	1/36 1/32	do. do.	1/26	do.	3	22	106	60	29½	19 20	9 56	9 24	51.4	48.6	1.51	2.94	5.74
14.7	4,600	2/36	do.	1/22	do.	3	20	104	60	34½	15 30	11 56	3 34	77.0	23.0	2.23	2.89	5.74
12.1	4,032	2/40	do.	1/24	do.	4	15	104	60	18	10 10	6 13	3 57	61.1	38.9	1.77	2.89	5.74
14.3	4,600	2/36	do.	1/22	do.	3	24	106	60	54	40 40	18 20	22 20	45.1	54.9	1.83	2.94	5.74
14.3	4,608	2/36	do.	1/22	do.	3	18	100	60	25	12 00	9 00	3 00	75.0	25.0	2.08	2.78	5.74
12.9	3,800	2/36	do.	1/24	do.	3	12	100	60	26	12 40	9 22	3 18	76.7	23.3	2.05	2.78	5.74
14.5	4,620	2/36	do.	1/22	do.	2	12	106	60	34½	23 50	11 38	12 12	48.8	51.2	1.44	2.94	5.74
12.2	4.032	2/32	do.	1/16	do.	3	26	104	60	52	22 20	18 00	4 20	80.6	19.4	2.33	1.89	5.74
14.4	4,608	2/36	do.	1/22	do.	4	26	104	60	31	15 10	10 44	4 26	70.8	29.2	2.04	2.89	10.77
13.4	4,060	1/36 1/32 2/32	do. do. do.	1/22	do.	3	17	104	60	73	39 00	25 16	13 44	64.8	35.2	1.87	2.89	5.74
12.0	3,920	2/21	do.	1/12½	do.	4	24	104	60	25½	14 10	8 50	5 20	62.3	37.7	1.80	2.89	5.74
11.8	4,284	2/44	do.	1/25	do.	3	18	104	60	32	16 40	11 05	5 35	67.1	32.9	1.92	2.89	6.31
14.7	4,608	2/36	do.	1/22	do.	3	24	104	60	50	30 30	17 19	13 11	56.8	43.2	1.64	2.89	5.74
12.3	4,104	2/40	do.	1/24	do.	3	16	104	62	49	20 20	12 54	7 26	63.4	36.6	2.41	2.80	5.74
15.1	4,032	2/28	do.	1/16	do.	4	16	104	62	76½	28 30	27 22	1 08	96.0	4.0	2.68	2.80	5.98
15.0	4,032	2/28	do.	1/16	do.	4	16	104	62	73	38 00	26 07	11 53	68.7	31.3	1.92	2.80	5.98
15.8	4,032	2/28	do.	1/16	do.	4	16	104	62	46½	24 10	16 32	7 38	68.5	31.5	1.91	2.80	5.93
15.2	4,032	2/28	do.	1/16	do.	4	16	104	62	76	40 40	27 11	13 29	66.8	33.2	1.87	2.80	5.92

12.7	4,180	2/40	do	1/24	do	3	18	100	62	32¾	23 40	12 11	11 29	51.5	48.5	1.38	2.69	5.98
12.9	4,200	2/40	do	1/24	do	3	21	106	62	51	34 00	17 54	16 06	52.6	47.4	1.50	2.85	5.98
15.1	4,082	2/28	do	1/16	do	4	16	104	62	31	13 40	11 05	2 35	81.1	18.9	2.27	2.80	5.92
12.5	4,200	2/40	do	1/24	do	4	20	104	62	16	9 15	5 46	3 29	62.3	37.7	1.73	2.80	5.98
12.8	4,180	2/40	do	1/24	do	4	14	104	62	31	16 00	11 05	4 55	69.3	30.7	1.94	2.80	5.98
13.1	4,032	2/36	do	1/24	do	3	18	104	64	23¼	12 40	8 41	3 59	68.6	31.4	1.86	2.71	6.13
12.8	4,800	2/44	do	1/25	do	3	10	104	64	29½	14 10	10 53	3 17	76.8	23.2	2.08	2.71	6.13
12.7	3,920	1/36 1/32	do do	1/26	do	3	16	106	64	33½	20 20	12 08	8 12	59.6	40.4	1.65	2.76	11.49
13.3	4,032	2/36	do	1/24	do	3	20	106	64	68½	32 40	24 43	7 57	75.7	24.3	2.09	2.76	6.13
13.2	3,920	1/36 1/32	do do	1/26	do	3	16	106	64	19½	10 10	7 04	3 06	69.5	30.5	1.92	2.76	11.49
16.5	4,082	2/32	do	1/16	do	4	16	104	64	67	40 40	24 44	15 56	60.8	39.2	1.65	2.71	6.13
16.7	4,032	2/32	do	1/16	do	3	22	104	64	72	40 40	26 35	14 05	65.4	34.6	1.77	2.71	11.49
16.8	3,960	2/32	do	1/16	do	3	20	104	64	82¾	39 00	30 33	8 27	78.3	21.7	2.12	2.71	6.13
16.3	4.082	2/32	do	1/16	do	4	16	106	64	73	40 40	26 27	14 13	65.0	35.0	1.80	2.76	6.13
14.8	5,200	2/40	do	1/24	do	3	24	104	64	65	30 30	24 00	6 30	78.7	21.3	2.13	2.71	11.49
16.4	4,082	2/32	do	1/16	do	4	16	104	64	82¾	40 40	30 33	10 07	75.1	24.9	2.03	2.71	6.13
16.3	4,032	2/32	do	1/16	do	3	12	106	64	91½	52 50	26 38	26 12	65.5	34.5	1.81	2.76	6.13
16.3	4,032	2/32	do	1/16	do	4	14	104	64	73	35 10	26 57	8 13	76.6	23.4	2.08	2.71	6.13
16.6	4,082	2/32	do	1/16	do	4	14	104	64	114	54 10	42 05	12 05	77.7	22.3	2.10	2.71	6.13
16.5	4,032	2/32	do	1/16	do	3	12	104	64	78½	37 40	28 53	8 47	76.7	23.3	2.08	2.71	6.13
16.3	4,082	2/32	do	1/16	do	4	16	104	64	25	13 50	9 14	4 36	66.7	33.3	1.81	2.71	6.13
14.8	4,608	2/36	do	1/22	do	2	20	104	64	51	30 00	18 50	11 10	62.8	37.2	1.70	2.71	11.49
16.8	4,032	2/32	do	1/16	do	3	15	104	64	75	38 10	27 42	10 28	72.5	27.5	1.97	2.71	6.31
13.8	5,200	2/40	do	1/24	do	3	24	104	64	43½	20 50	16 04	4 46	77.1	22.9	2.09	2.71	6.13
13.3	4,200	2/36	do	1/24	do	3	14	106	64	26½	14 20	9 36	4 44	67.0	33.0	1.85	2.76	6.13
12.0	4,176	2/44	do	1/25	do	3	18	104	66	34	17 20	12 57	4 23	74.7	25.3	1.96	2.63	6.31
12.0	4,320	2/44	do	1/25	do	3	14	106	66	34½	23 20	12 48	10 32	54.9	45.1	1.47	2.68	6.31
11.7	4,192	2/44	do	1/25	do	3	22	106	66	33¼	24 20	12 25	11 55	51.0	49.0	1.37	2.68	6.31
15.5	4,600	2/36	do	1/22	do	3	12	104	66	39¾	29 50	15 02	14 48	50.4	49.6	1.32	2.63	6.31
13.6	4,368	2/40	do	1/24	do	4	14	106	66	39	20 20	14 34	5 46	71.7	28.3	1.92	2.68	6.31
12.1	4,284	2/44	do	1/25	do	3	18	104	66	40	20 20	15 14	5 06	74.9	25.1	1.97	2.63	6.31
12.1	4,284	2/44	do	1/25	do	3	18	104	66	52	29 30	19 48	9 42	67.1	32.9	1.76	2.63	6.31
11.8	4,284	2/44	do	1/25	do	3	18	104	66	34¼	19 20	13 02	6 18	67.4	32.6	1.78	2.63	6.31
14.6	5,000	2/40	do	1/24	do	3	20	106	68	39	22 20	15 01	7 19	67.2	32.8	1.75	2.60	6.5
14.0	5,022	2/40	do	1/24	do	4	13	106	70	52	40 40	20 36	20 04	50.7	49.3	1.28	2.52	6.7
14.1	5,040	2/40	do	1/24	do	3	12	100	70	41	23 20	17 13	6 07	73.8	26.2	1.76	2.38	6.7
14.5	5,040	2/40	do	1/24	do	3	17	104	70	53	29 00	21 24	7 36	73.8	26.2	1.83	2.48	6.7
17.0	3,280	2/24	do	2/24	do	3	8	108	50	120½	64 50	35 58	28 52	55.5	44.5	2.14	3.60	4.62
18.0	4,176	2/28	do	2/28	do	3	10	108	58	67½	30 30	21 45	8 45	71.3	28.7	2.21	3.10	11.0
18.0	4,176	2/28	do	2/28	do	3	10	108	58	36	15 10	11 36	3 34	76.5	23.5	2.37	3.10	11.0
18.0	4,130	2/28	do	2/28	do	3	12	108	58	39½	18 10	12 44	5 26	70.1	29.9	2.17	3.10	11.0
18.0	4,176	2/28	do	2/28	do	3	10	108	58	62	28 20	19 59	8 21	70.5	29.5	2.19	3.10	11.0
18.0	4,176	2/28	do	2/28	do	3	10	108	58	102½	40 40	32 57	7 43	81.0	19.0	2.51	3.10	11.0
17.7	4,228	2/30	do	2/30	do	2	12	92	60	106	47 00	41 29	5 31	88.3	11.7	2.26	2.56	9.6
17.6	4,230	2/30	do	2/30	do	2	12	92	60	108	47 00	42 16	4 44	89.9	10.1	2.30	2.56	9.6
17.3	4,228	2/30	do	2/30	do	2	12	92	60	109½	47 00	42 51	4 09	91.2	8.8	2.33	2.56	9.6
17.3	4,230	2/30	do	2/30	do	2	12	92	60	111¾	47 00	43 38	3 22	92.8	7.2	2.37	2.56	9.6
13.1	4,310	2/40	do	2/40	do	2	12	92	62	51	23 00	20 37	2 23	89.6	10.4	2.22	2.47	10.8

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN WORSTED—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.5	4,410	2/40	Worsted	2/40	Worsted	2	12	92	64	96½	47 00	40 17	6 43	85.7	14.3	2.05	2.40	11.1
13.4	4,410	2/40	do	2/40	do	2	12	92	64	93	40 00	38 49	1 11	97.0	3.0	2.32	2.40	11.1
13.3	4,410	2/40	do	2/40	do	2	12	92	64	91	40 30	37 59	2 31	93.8	6.2	2.25	2.40	11.1
13.5	4,410	2/40	do	2/40	do	2	12	92	64	79½	35 00	33 11	1 49	94.8	5.2	2.27	2.40	11.1
13.5	4,410	2/40	do	2/40	do	2	12	92	64	54½	24 00	22 45	1 15	94.8	5.2	2.27	2.40	11.1
14.3	4,480	2/40	do	2/40	do	2	12	92	64	82	36 30	34 14	2 16	93.8	6.2	2.25	2.40	11.1
13.4	4,410	2/40	do	2/40	do	2	12	94	64	111½	45 30	44 33	0 57	97.9	2.1	2.43	2.45	11.1
14.2	4,570	2/40	do	2/40	do	2	12	92	66	73½	33 00	31 38	1 22	95.9	4.1	2.23	2.32	11.3
14.6	4,748	2/40	do	2/40	do	2	12	92	68	88	45 00	39 02	5 58	86.7	13.3	1.96	2.25	11.6
13.3	4,940	2/48	do	2/48	do	2	12	92	72	75½	43 30	35 27	8 03	81.5	18.5	1.74	2.13	11.9
13.0	4,860	2/40	do	2/40	do	2	12	92	72	76	36 30	35 41	49	97.8	2.2	2.08	2.13	11.9

FEMALE WEAVERS.

15.4	3,240	2/26	Worsted	1/16	Worsted	4	12	106	48	79½	31 30	21 36	9 54	68.6	31.4	2.52	3.68	4.59
16.6	3,465	2/16	do	1/12	do	4	12	104	48	98½	40 10	27 17	12 53	67.9	32.1	2.45	3.61	4.59
16.5	3,230	2/26	do	1/13	do	4	15	106	50	114	50 40	32 16	18 24	63.7	36.3	2.25	3.53	4.78
16.0	3,240	2/26	do	1/13½	do	4	16	106	50	65	25 20	18 24	6 56	72.6	27.4	2.57	3.53	4.78
16.8	2,880	2/21	do	1/12½	do	3	22	106	50	36	12 20	10 11	2 09	82.6	17.4	2.92	3.53	4.78
16.0	4,224	2/27	do	1/14	do	4	16	106	52	56½	30 30	16 38	13 52	54.5	45.5	1.85	3.40	4.98
15.8	3,276	2/26	do	1/13½	do	3	19	106	52	61	30 30	27 47	2 43	91.1	8.9	2.00	3.40	4.98
14.9	3,220	2/28	do	1/14½	do	4	11	104	52	177	78 20	53 06	25 14	67.8	32.2	2.26	3.33	4.98
16.0	3,456	2/27	do	1/14	do	4	20	104	52	35	16 00	10 30	5 30	65.6	34.4	2.19	3.33	4.98
14.3	3,240	2/28	do	1/14½	do	2	18	104	52	51½	23 20	15 27	7 53	66.2	33.8	2.21	3.33	4.98
16.8	3,600	2/40	do	2/50	do	3	25	104	56	100	40 40	32 19	8 21	79.5	20.5	2.46	3.10	10.05
17.3	6,936	2/36	do	1/20	do	2	22	104	56	59	40 10	19 04	21 06	47.5	52.5	1.47	3.10	10.05
17.3	6,936	2/36	do	1/20	do	2	22	104	56	60½	40 10	19 28	20 42	48.5	51.5	1.50	3.10	10.05
13.2	3,808	1/36	do	1/22	do	3	14	104	60	38½	16 30	11 36	4 44	71.0	29.0	2.05	2.39	5.76
		1/32	do															
		2/32	do															
12.3	3,456	1/36	do	1/26	do	4	16	106	60	21½	18 30	7 18	6 02	54.8	45.2	1.61	2.94	5.74
		1/32	do															
		1/32	do															
13.1	3,920	1/36	do	1/22	do	3	17	106	60	18½	11 20	6 17	5 03	55.4	44.6	1.63	2.94	10.77
		1/32	do															
		2/32	do															
14.9	4,032	2/28	do	1/16	do	4	16	106	62	88	40 40	30 53	9 47	75.9	24.1	2.16	2.85	5.93
13.1	4,176	2/40	do	1/24	do	3	16	104	62	25	13 10	8 56	4 14	67.8	32.2	1.90	2.80	11.13
		2/40	do															
13.3	3,920	1/32	do	1/26	do	4	16	106	64	25	14 50	9 04	5 46	61.3	38.7	1.60	2.76	11.49
		1/36	do															
		1/32	do															
13.0	3,920	1/36	do	1/26	do	3	13	106	64	53½	25 30	19 28	6 02	76.3	23.7	2.11	2.76	10.77
		1/32	do															
		1/32	do															
16.3	4,032	2/32	do	1/16	do	4	16	104	64	49½	26 00	18 17	7 43	70.3	29.7	1.90	2.71	6.13
15.2	4,080	2/32	do	1/16	do	3	12	104	64	16	8 30	5 55	2 35	69.6	30.4	1.88	2.71	6.13
11.7	3,312	2/44	do	1/25	do	3	16	106	66	20½	17 20	11 18	6 02	65.2	34.8	1.75	2.68	6.31
16.2	7,380	2-48	do	2-48	do	3	26	96	56	38	39 30	13 18	26 12	33.7	66.3	0.96	2.36	13.2
12.6	3,840	2-38	do	2-38	do	3	10	85	60	89	42 10	37 41	4 29	89.4	10.6	2.11	2.36	11.8
12.6	3,840	2-38	do	2-38	do	3	10	85	60	87	42 30	36 51	5 39	86.7	13.3	2.05	2.36	11.8
13.2	4,224	2-40	do	2-40	do	3	12	90	64	68	42 05	29 01	13 04	68.9	31.1	1.62	2.34	12.5
15.0	4,032	2-40	do	2/40	do	5	8	90	66	65	42 10	28 36	13 34	67.8	32.2	1.54	2.27	12.8
13.6	4,032	2-40	do	2-40	do	5	9	90	66	43	22 50	18 55	3 55	82.9	17.1	1.88	2.27	13.3
13.6	4,032	2-40	do	2-40	do	3	8	106	66	58	25 50	21 40	4 10	83.9	16.1	2.25	2.68	12.8
16.2	4,608	2/36	do	1/18	do	2	8	106	68	97½	40 40	37 32	3 08	92.3	7.7	2.40	2.60	5.7
11.6	2,592	2-50	do	1-4	Woolen	4	10	110	38	29	9 50	6 01	3 49	61.1	38.9	2.95	4.82	7.75
12.4	3,456	2-50	do	1-4	do	4	14	108	44	37	24 20	9 02	15 18	37.2	62.8	1.52	4.09	7.75
12.3	3,456	2-50	do	1-4	do	4	12	110	44	127	33 20	30 29	2 51	91.4	8.6	3.81	4.17	7.75

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

PLAIN WORSTED—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
12.3	3,504	2-50	Worsted	1-4	Woolen	4	13	108	44	44¾	14 00	10 56	3 04	78.1	21.9	3.20	4.09	7.75
12.0	3,456	2-50	do	1-4	do	4	8	108	44	74	26 10	18 05	8 05	69.1	30.9	2.83	4.09	7.75
12.7	3,840	2-50	do	1-4½	do	4	8	108	46	100½	40 15	26 48	13 27	66.6	33.4	2.50	3.75	8.25
10.4	3,456	2-40	do	2-40	Worsted	4	10	108	56	51	22 35	15 52	6 43	70.3	29.7	2.26	3.21	10.4
10.8	3,564	2-40	do	2-40	do	4	13	108	56	22	10 30	6 50	3 40	65.1	34.9	2.10	3.21	10.4
10.8	3,456	2-40	do	2-40	do	4	10	108	56	74	38 30	23 01	15 29	59.8	40.2	1.92	3.21	10.4
11.8	3,840	2-40	do	2-40	do	4	12	108	58	40½	15 45	13 03	2 42	82.9	17.1	2.57	3.10	10.34
15.0	4,000	2-42	do	6¼	Woolen	3	12	90	58	77	42 10	29 46	12 24	70.6	29.4	1.83	2.59	10.1
17.4	4,032	2-30	do	5¾	do	3	8	96	60	74	39 30	27 45	11 45	70.3	29.7	1.87	2.67	11.8
17.4	4,032	2.32	do	5½	do	3	12	106	60	28	13 00	9 31	3 29	73.2	26.8	2.15	2.94	10.9
13.0	4,032	2-40	do	7½	do	4	8	85	62	57	39 20	24 57	14 23	63.4	36.6	1.45	2.28	11.7
13.0	4,032	2-40	do	2-40	Worsted	3	12	85	62	71	42 10	31 04	11 06	73.7	26.3	1.68	2.28	12.2
17.4	4,032	2-30	do	5½	Woolen	3	8	85	62	47	26 40	20 34	6 06	77.1	22.9	1.76	2.28	12.2
15.0	4,320	2-40	do	2-40	Worsted	5	12	90	66	87	42 10	38 17	3 53	90.8	9.2	2.06	2.27	11.3
9.95	3,042	2-40	do	2-40	do	2	6	120	50	131½	53 10	32 52	20 18	61.8	38.2	2.47	4.00	4.2
9.92	3,042	2-40	do	2-40	do	2	6	120	50	110	49 10	27 30	21 40	55.9	44.1	2.24	4.00	4.2
9.95	3,042	2-40	do	2-40	do	2	6	120	50	47	26 30	11 45	14 45	44.3	55.7	1.77	4.00	4.2
9.63	3,100	2-32	do	1-28	do	2	4	120	60	119¾	55 10	35 56	19 14	65.1	34.9	2.17	3.33	4.2
9.63	3,100	2-32	do	1-28	do	2	4	120	60	136¾	54 40	41 02	13 38	75.1	24.9	2.50	3.33	4.2
9.63	3,100	2-32	do	1-38	do	2	4	120	60	129	54 50	38 42	16 08	70.6	29.4	2.35	3.33	4.2
10.05	4,192	2-40	do	1-32	do	2	8	125	60	123¼	55 10	35 30	19 40	64.3	35.7	2.23	3.47	4.0
10.05	4,192	2-40	do	1-32	do	2	8	125	60	180½	55 10	51 59	3 11	94.2	5.8	3.27	3.47	4.0
7.71	4,920	2-60	do	1-45	do	2	8	120	76	85	54 10	32 18	21 52	59.6	40.4	1.57	2.63	5.3
7.71	4,920	2-60	do	1-45	do	2	8	120	76	88¼	54 10	33 32	20 38	61.9	38.1	1.63	2.63	5.3
10.50	5,005	2-48	do	1-40	do	2	6	120	80	65½	52 10	26 12	25 58	50.2	49.8	1.26	2.50	5.9

10.50	5,005	2-48	.....do.........	1-40	.....do........	2	16	120	80	63¾	52 50	25 30	27 20	48.3	51.7	1.21	2.50	5.9
10.50	5,005	2-48	.....do.........	1-40	.....do........	2	6	120	80	100	55 10	40 00	15 10	72.5	27.5	1.81	2.50	5.9
10.50	5,005	2-48	.....do.........	1-40	.....do........	2	6	120	80	81¾	53 40	32 42	20 58	60.9	39.1	1.52	2.50	5.9
10.50	5,005	2-48	.....do.........	1-40	.....do........	2	6	120	80	89	52 50	35 36	17 14	67.4	32.6	1.68	2.50	5.9
10.51	5,005	2-48	.....do.........	1-40	.....do........	2	13	120	80	73	54 40	29 12	25 28	53.4	46.6	1.34	2.50	5.9
10.50	5,005	2-48	.....do.........	1-40	.....do........	2	6	120	80	70[illegible]	41 20	28 18	13 02	68.5	31.5	1.71	2.50	5.9
14.0	3,414	2-24	.....do.........	2-36	.....do........	1	6	118	48	91[illegible]	27 30	22 16	5 14	54.3	45.7	3.32	4.10	3.13
13.8	2,414	2-24	.....do.........	2-36	.....do........	1	6	120	48	90[illegible]	34 15	21 47	12 28	63.6	36.4	2.65	4.17	3.22
14.0	3,414	2-24	.....do.........	2-36	.....do........	1	6	120	48	68[illegible]	34 15	16 23	17 52	47.8	52.2	1.99	4.17	3.22
14.0	3,414	2-24	.....do.........	2-36	.....do........	1	6	116	48	96[illegible]	34 15	23 57	10 18	69.9	30.1	2.82	4.03	3.22
12.7	2,300	1-4	Woolen.........	1-4¼	Woolen........	4	13	97	36	98[illegible]	31 25	21 53	9 32	69.6	30.4	3.13	4.49	6.75
15.0	5,760	2-46	Worsted........	1-28	Worsted.......	3	8	92	88	106	70 30	60 50	9 40	86.3	13.7	1.50	1.74	12.8
15.0	5,760	2-46	.....do.........	1-28	.....do........	3	8	100	88	89	58 00	46 59	11 01	81.0	19.0	1.53	1.89	8.8

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY WORSTED.

MALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
11.8	3,362	2-30	Worsted	1/20	Worsted	1	16	125	54	110	41 40	28 31	13 09	68.4	31.6	2.64	2.86	4.59
11.9	3,288	2-30	do	1-20	do	1	16	125	54	90	41 40	23 20	18 20	56.0	44.0	2.16	3.86	4.59
12.0	3,288	2-30	do	1-20	do	1	8	125	54	92	41 40	23 51	17 49	57.2	42.8	2.21	3.86	4.59
12.0	3,288	2-30	do	1-20	do	1	10	125	54	100	41 40	25 55	15 45	62.2	37.8	2.40	3.86	4.59
11.5	3,338	2-30	do	1-20	do	1	8	125	54	80	41 40	20 44	20 56	49.8	50.2	1.92	3.86	4.59
15.7	6,600	2-40	do	2-40	do	2	13	90	56	72	41 40	26 53	14 47	64.5	35.5	1.73	2.68	11.2
16.0	6,600	2-40	do	2-40	do	2	13	90	56	67	37 15	25 01	12 14	67.2	32.8	1.80	2.68	11.2
11.5	3,852	2-36	do	1-20	do	1	10	125	58	105	41 40	29 14	12 26	70.2	29.8	2.52	3.59	4.93
11.5	3,688	2-36	do	1-20	do	1	8	125	58	103	41 40	28 40	13 00	68.8	31.2	2.47	3.59	4.93
11.8	3,688	2-36	do	1-20	do	1	10	125	58	87	41 40	24 13	17 27	58.1	41.9	2.09	3.59	4.93
11.8	3,688	2-36	do	1-20	do	1	12	125	58	73	41 40	20 19	21 21	48.8	51.2	1.75	3.59	4.93
11.8	3,688	2-36	do	1-20	do	1	12	125	58	90	41 40	25 04	16 36	60.2	39.8	2.16	3.59	4.93
11.3	3,688	2-36	do	1-20	do	1	8	125	58	80	41 40	22 16	19 24	53.4	46.6	1.92	3.59	4.93
11.5	3,684	2-36	do	1-20	do	1	12	125	58	92	41 40	25 37	16 03	61.5	38.5	2.21	3.59	4.93
11.6	4,068	2-40	do	1-20	do	1	8	125	60	104	41 40	29 57	11 43	71.9	28.1	2.50	3.47	5.1
11.4	4,742	2-40	do	2-40	do	3	14	110	60	89	41 40	29 08	12 32	69.9	30.1	2.14	3.06	6.0
12.0	4,076	2-40	do	2-40	do	3	8	100	60	59	41 40	21 14	20 26	51.0	49.0	1.42	2.78	6.3
11.7	4,242	2-40	do	2-40	do	3	12	100	60	66	41 40	23 46	17 54	57.0	43.0	1.58	2.78	6.3
11.8	4,246	2-40	do	2-40	do	3	12	110	60	82	41 40	26 50	14 50	64.4	35.6	1.97	3.06	6.0
12.2	4,076	2-40	do	2-40	do	3	12	90	60	48	38 15	19 12	19 03	50.2	49.8	1.26	2.50	6.3
11.8	4,187	2-40	do	2-40	do	3	12	110	60	91	41 40	29 47	11 53	71.5	28.5	2.18	3.06	6.0
11.4	3,474	2-36	do	1-20	do	2	8	125	60	91	41 40	26 13	15 27	62.9	37.1	2.18	3.47	5.4
11.8	4,326	2-40	do	2-40	do	2	17	125	60	77	41 40	22 11	19 29	53.2	46.8	1.85	3.47	5.9
13.0	4,076	2-40	do	2-40	do	3	16	100	60	90	41 40	32 24	9 16	77.8	22.2	2.16	2.78	6.4
11.7	4,076	2-40	do	2-40	do	3	8	100	60	58	41 40	20 53	20 47	50.1	49.9	1.39	2.78	6.3
11.6	4,246	2-50	do	2-40	do	3	12	110	60	90	40 40	29 27	11 13	72.4	27.6	2.21	3.06	6.0

12.0	4,076	2-40	do	2-40	do	3	16	110	60	83	41 40	27 10	14 30	65.2	34.8	1.99	3.06	6.0
11.6	3,474	2-36	do	1-20	do	2	16	90	60	60	41 40	24 00	17 40	57.6	42.4	1.44	2.50	6.5
11.5	4,076	2-40	do	2-40	do	3	8	100	60	79	41 40	28 26	13 14	68.2	31.8	1.90	2.78	6.3
11.9	4,016	2-40	do	2-40	do	3	12	100	60	78	41 40	28 05	13 35	67.4	32.6	1.87	2.78	6.3
11.5	4,322	2-40	do	2-40	do	3	12	100	60	75	38 50	27 00	11 50	69.5	30.5	1.93	2.78	6.0
12.0	4,076	2-40	do	2-40	do	1	3	90	60	56	34 15	22 24	11 51	65.4	34.6	1.64	2.50	6.3
11.6	4,076	2-40	do	2-40	do	3	8	90	60	77	41 40	30 48	10 52	73.9	26.1	1.85	2.50	6.3
19.3	5,184	2/40	do	3½	do	3	18	104	48	91	37 30	25 12	12 18	67.2	32.8	2.43	3.61	9.76
15.8	3,456	2/26	do	1/13	do	4	16	104	50	117	40 40	33 45	6 55	83.0	17.0	2.88	3.47	5.35
16.4	3,328	2/18	do	1/13	do	3	18	106	50	117½	40 40	19 57	20 43	49.1	50.9	2.89	3.53	5.35
17.6	3,132	2/21	do	1/13	do	2	18	104	52	103¼	40 40	30 58	9 42	76.1	23.9	2.54	3.33	5.55
17.8	2,904	2/21	do	1/13	do	3	12	106	52	105¼	40 40	30 59	9 41	76.2	23.8	2.59	3.40	5.55
16.0	3,240	2/26	do	1/13½	do	3	13	106	52	90	40 40	26 29	14 11	65.1	34.9	2.21	3.40	4.98
16.6	3,672	2/26	do	1/13	do	3	10	106	54	104½	40 40	31 56	8 44	78.5	21.5	2.57	3.27	5.74
16.3	3,672	2/26	do	1/13	do	3	14	106	54	17	10 10	5 12	4 58	51.1	48.9	1.67	3.27	5.74
16.4	3,672	2/26	do	1/13	do	3	14	104	54	108½	40 40	33 48	6 52	83.1	16.9	2.67	3.21	5.74
16.2	3,654	2/26	do	1/13	do	3	14	104	54	46½	20 20	14 29	5 51	71.2	28.8	2.29	3.21	5.74
16.5	3,550	2/26	do	1/13	do	3	18	106	54	58	24 20	17 44	6 36	72.9	27.1	2.38	3.27	5.74
17.4	3,510	2/26	do	1/13	do	3	16	106	54	96	40 40	29 20	11 20	72.1	27.9	2.36	3.27	5.74
16.7	3,654	2/26	do	1/13	do	3	14	106	54	110½	40 40	33 47	6 53	83.1	16.9	2.72	3.27	5.74
16.7	3,534	2/26	do	1/13	do	4	16	106	54	41	18 20	12 32	5 48	68.4	31.6	2.24	3.27	5.74
16.2	3,672	2/26	do	1/13	do	2	14	106	54	107½	40 40	32 56	7 44	81.0	19.0	2.65	3.27	5.74
16.0	3,240	2/26	do	1/14	do	4	15	106	54	83	38 00	25 22	12 38	66.8	33.2	2.18	3.27	5.74
17.4	3,534	2/26	do	1/13	do	3	16	106	54	94	40 40	28 44	11 56	70.7	29.3	2.31	3.27	5.74
16.1	3,654	2/26	do	1/13	do	3	14	106	54	32½	13 20	10 01	3 19	75.1	24.9	2.46	3.27	5.74
17.2	3,744	2/26	do	1/14	do	3	12	104	56	47½	20 20	15 16	5 04	75.1	24.9	2.32	3.10	5.92
18.0	3,600	2/26	do	1/14	do	4	12	104	56	63¼	25 20	20 26	4 54	80.7	19.3	2.50	3.10	6.40
17.3	3,600	2/26	do	1/14	do	3	19	106	56	112½	40 40	35 40	5 00	87.7	12.3	2.77	3.15	5.55
13.4	3,740	2/34	do	1/20	do	3	16	106	60	16½	9 10	5 36	3 34	61.1	38.9	1.80	2.94	6.31
13.3	3,960	2/36	do	1/20	do	3	15	106	60	94	53 00	31 56	21 04	60.3	39.7	1.77	2.94	6.31
13.3	3,795	2/36	do	1/20	do	3	16	106	60	45½	27 50	15 27	12 23	55.5	44.5	1.63	2.94	6.31
17.7	4,032	2/26	do	1/14	do	4	16	106	60	86	40 40	29 13	11 27	71.8	28.2	2.11	2.94	6.88
12.8	3,864	2/34	do	1/20	do	3	16	106	60	25¼	12 10	8 35	3 35	70.5	29.5	2.08	2.94	6.31
13.3	3,840	2/36	do	1/20	do	3	15	106	60	55¼	34 30	18 46	15 44	54.4	45.6	1.60	2.94	6.31
13.2	3,944	2/36	do	1/20	do	3	14	106	60	31¼	18 20	10 37	7 43	57.9	42.1	1.70	2.94	6.31
17.0	4,032	2/26	do	1/14	do	4	16	106	60	21¼	10 10	4 20	5 50	42.6	57.4	2.09	2.94	6.88
17.7	4,032	2/26	do	1/14	do	4	16	106	60	101¼	40 40	34 56	5 44	85.9	14.1	2.50	2.94	6.88
17.0	4,032	2/26	do	1/14	do	4	16	106	60	22½	10 10	7 38	2 32	75.1	24.9	2.21	2.94	6.88
12.8	4,312	2/36	do	1/24	do	3	16	106	60	73	40 40	24 45	15 55	60.9	39.1	1.80	2.94	11.91
13.0	3,920	2/34	do	1/20	do	3	14	106	60	58½	40 40	19 45	20 55	48.6	51.4	1.43	2.94	11.91
13.2	4,345	2/36	do	1/24	do	3	22	106	60	30	13 40	10 11	3 29	74.5	25.5	2.20	2.94	6.31
13.0	3,828	2/34	do	1/20	do	3	15	106	60	48	24 20	16 58	7 22	67.0	33.0	1.97	2.94	6.31
12.7	3,960	2/34	do	1/20	do	3	15	106	60	25¾	11 20	8 40	2 40	76.5	23.5	2.25	2.94	6.31
12.9	4,144	2/36	do	1/20	do	3	16	104	60	57	33 20	19 44	13 36	59.2	40.8	1.71	2.89	6.31
13.0	4,032	2/34	do	1/20	do	3	16	104	60	60	35 30	20 46	14 44	58.5	41.5	1.69	2.89	6.31
13.5	3,254	1/32 1/36	do do	1/22	do	3	21	104	60	42	24 30	14 32	9 58	79.7	20.3	1.71	2.89	5.74
16.6	3,456	2/26	do	1/14	do	3	12	104	60	43	22 10	14 53	7 17	67.1	32.9	1.94	2.89	5.35
11.6	2,448	2/24	do	2/24	do	1	16	100	49	125½	42 50	30 07	12 43	70.3	29.7	2.93	4.17	2.95
10.6	3,000	2/32	do	1/20	do	1	8	100	42	135	45 50	34 01	11 49	74.2	25.8	2.95	3.97	3.969
10.6	3,000	2/32	do	1/20	do	1	8	90	42	46	15 20	12 53	2 27	84.0	16.0	3.00	3.57	4.3
10.6	3,000	2/32	do	1/20	do	1	8	90	42	129½	45 50	36 16	9 34	79.1	20.9	2.83	3.57	4.3

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY WORSTED—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
10.6	3,000	2/32	Worsted	1/20	Worsted	1	8	90	42	112¼	45 50	31 30	14 20	68.7	31.3	2.45	3.57	4.3
10.6	3,000	2/32	do	1/20	do	1	8	90	42	143½	45 50	40 11	5 39	87.7	12.3	3.13	3.57	4.3
10.6	3,000	2/32	do	1/20	do	1	8	90	42	140½	45 50	39 20	6 30	85.8	14.2	3.07	3.57	4.3
9.5	3,628	2/32	do	1/28	do	1	8	120	53	131½	45 50	34 51	10 59	76.0	24.0	2.87	3.77	3.22
14.5	4,080	2/32	do	2/34	do	3	12	108	58	84¾	34 30	27 19	7 11	79.2	20.8	2.46	3.10	4.62
10.2	3,888	2/42	do	1/28	do	3	17	106	58	111	49 15	36 26	12 49	74.0	26.0	2.25	3.05	4.62
10.2	3,828	2/42	do	1/28	do	3	12	118	58	116	44 30	34 13	10 17	76.9	23.1	2.61	3.39	4.62
10.2	3,780	2/42	do	1/28	do	3	16	120	58	109	49 15	31 37	17 38	64.2	35.8	2.21	3.45	4.62
16.0	3,780	2/28	do	1/16	do	3	18	110	60	77	44 15	25 12	19 03	56.9	43.1	1.74	3.56	4.73
17.2	4,320	2/28	do	1/17	do	3	16	110	60	92	42 45	30 07	12 38	70.4	29.6	2.15	3.06	4.73
16.0	4,056	2/34	do	1/15	do	3	18	112	62	62½	26 45	20 46	5 59	77.6	22.4	2.34	3.01	4.84
12.0	4,080	4/40	do	1/24	do	3	22	106	64	47	21 30	17 02	4 28	79.2	20.8	2.19	2.76	4.95
11.8	4,048	2/40	do	1/24	do	3	12	106	64	81½	49 15	29 31	19 44	59.9	40.1	1.65	2.76	4.95
11.5	4,000	2/40	do	1/24	do	3	12	110	64	83	41 30	28 58	12 32	69.8	30.2	2.00	2.86	4.95
11.6	4,000	2/40	do	1/24	do	3	12	118	64	102¾	45 15	33 26	11 49	73.9	26.1	2.27	3.07	4.95
11.6	4,000	2/40	do	1/24	do	3	12	118	64	62¼	27 15	20 16	6 59	74.3	25.7	2.28	3.07	4.95
10.2	3,828	2/42	do	1/28	do	3	12	118	64	116	44 30	34 13	10 17	76.9	23.1	2.61	3.39	4.62
18.8	4,128	2/28	do	2/28	do	3	8	108	60	81½	48 15	27 10	21 05	56.3	43.7	1.84	3.00	4.73
16.0	6,240	2/40	do	1/16	do	3	20	108	64	68	29 15	24 11	5 04	82.7	17.3	2.32	2.81	5.83
9.2	3,026	2-36	do	1-24	do	1	4	132	45	79¾	27 15	16 19	10 56	59.9	40.1	2.93	4.89	2.41
11.2	4,125	2-38	do	1-29	do	1	15	120	51	33¼	13 15	8 29	4 46	64.0	36.0	2.51	3.92	3.97
12.2	3,466	2-30	do	1-26	do	1	11	126	52	93¼	34 15	23 05	11 10	67.4	32.6	2.72	4.04	3.3
11.8	3,466	2-30	do	1-26	do	1	12	120	52	94	31 30	24 26	7 04	77.6	22.4	2.98	3.85	3.35
11.0	3,220	2-30	do	1-25	do	1	12	120	52	94½	33 30	24 31	8 59	73.2	26.8	2.81	3.85	3.35
10.4	3,220	2-30	do	1-24	do	1	12	120	52	101½	34 15	26 23	7 52	77.0	23.0	2.96	3.85	3.35
11.0	3,466	2-30	do	1-26	do	1	12	116	54	97	34 15	27 05	7 10	79.1	20.9	2.84	3.58	3.46

12.0	3,406	2-30	do	1-26	do	1	10	120	54	50¼	29 15	13 42	15 33	46.8	53.2	1.74	3.70	3.37
11.2	3,456	2-30	do	1-26	do	1	12	112	54	91	34 15	26 19	7 56	76.8	23.2	2.66	3.46	3.46
11.6	3,466	2-30	do	1-26	do	1	12	124	54	78½	29 15	20 31	8 44	70.1	29.9	2.68	3.83	3.56
13.0	4,032	1/36 1/32 2/32	do do do	1/22	do	3	16	104	60	79½	40 10	27 31	12 39	68.6	31.4	1.98	2.89	6.31
16.0	2,688	2-20	do	2-20	do	2	4	123	40	53½	18 10	10 26	7 44	57.4	42.6	2.94	5.13	3.06
15.8	2,688	2-20	do	2-20	do	2	6	123	40	178	40 40	34 44	5 56	85.4	14.6	4.38	5.13	3.06
16.2	2,688	2-20	do	2-20	do	2	4	123	40	71	19 20	13 51	5 29	71.6	28.4	3.67	5.13	3.06
16.2	2 688	2-20	do	2-20	do	2	8	123	40	150¼	40 40	29 19	11 21	72.1	27.9	3.69	5.13	3.06
19.4	3,240	2-22	do	2-22	do	5	10	100	52	104¼	38 30	32 32	5 58	84.5	15.5	2.71	3.21	10.11
13.5	4,032	2/36	do	1-20	do	2	8	106	64	102½	40 40	37 08	3 32	91.3	8.7	2.52	2.76	5.3
18.0	3,312	2/24	do	2/24	do	3	19	108	54	95¾	40 40	28 35	12 05	70.3	29.7	2.34	3.33	10.3
18.0	4,240	2/28	do	2/28	do	3	16	108	54	94½	40 40	28 39	12 01	70.5	29.5	2.35	3.33	10.3
18.0	4,056	2/28	do	2/28	do	4	9	108	56	90	40 40	28 00	12 40	68.9	31.1	2.21	3.21	10.7
18.0	3,908	2/28	do	2/28	do	3	8	108	56	46	22 20	14 19	8 01	64.1	35.9	2.06	3.21	10.7
17.0	3,912	2/28	do	2/28	do	3	14	108	58	45	25 20	14 30	10 50	57.2	42.8	1.78	3.10	11.0
17.0	3,912	2/28	do	2/28	do	3	14	108	58	72	33 30	23 12	10 18	69.3	30.7	2.15	3.10	11.0
18.0	6,720	2/40	do	2/40	do	4	12	108	72	58¼	40 40	23 24	17 16	57.5	42.5	1.44	2.50	13.6
19.8	9,096	2/48	do	2/48	do	3	25	92	64	77½	36 30	32 21	4 09	88.6	11.4	2.12	2.40	11.4
19.7	8 906	2/48	do	2/48	do	3	30	92	64	71	36 30	29 38	6 52	81.2	18.8	1.95	2.40	11.4
20.1	9 096	2/48	do	2/48	do	3	24	92	64	102½	47 00	42 47	4 13	91.0	9.0	2.18	2.40	11.4
20.1	9,096	2/48	do	2/48	do	3	25	92	64	98	47 00	40 55	6 05	87.1	12.9	2.09	2.40	11.4
19.7	9,096	2/48	do	2/48	do	3	25	94	64	101	42 00	41 16	44	98.3	1.7	2.40	2.44	11.4
19.4	9,026	2/48	do	2/48	do	3	30	94	64	42	21 00	17 10	3 50	81.7	18.3	2.00	2.45	11.4
13.6	4,304	2/40	do	2/40	do	3	12	92	66	43	21 00	18 31	2 29	88.2	11.8	2.05	2.32	11.6
18.4	9,048	2/48	do	2/48	do	5	24	92	68	56	34 30	24 50	9 40	72.0	28.0	1.63	2.25	12.5
18.3	9,028	2/48	do	2/48	do	3	16	92	68	61	34 00	27 03	6 57	79.6	20.4	1.79	2.25	11.8
18.1	9,048	2/48	do	2/48	do	5	24	94	68	51	31 30	22 08	9 22	70.3	29.7	1.62	2.30	12.5
12.6	4,568	2/48	do	2/48	do	2	12	92	70	45½	29 30	20 19	9 11	68.9	31.1	1.54	2.20	12.7
18.0	9,460	2/60	do	2/48	do	3	16	92	70	72	43 30	32 52	10 38	75.6	24.4	1.66	2.19	12.0
12.7	4,592	2/48	do	2/48	do	3	12	92	70	58	32 00	26 29	5 31	82.8	17.2	1.81	2.19	12.0
12.6	4,568	2/48	do	2/48	do	3	12	92	70	44½	26 00	20 19	5 41	78.1	21.9	1.71	2.19	12.0
12.5	4,760	2/48	do	2/48	do	3	12	92	72	41½	21 00	19 29	1 31	92.8	7.2	1.98	2.13	12.2
20.4	9,220	2/60	do	2/60	do	3	16	92	138	38½	42 00	34 39	7 21	82.5	17.5	.92	1.11	22.9
20.5	9,220	2/60	do	2/60	do	3	16	92	138	39	41 30	34 21	7 09	82.8	17.2	.94	1.14	22.9
16.3	3,248	2-20	do	1-14	do	3	8	110	48	96½	37 30	25 16	12 14	67.39	32.61	2.57	3.82	4.43
16.3	6,800	2-40	do	1-20	do	3	26	94	56	108¼	42 30	38 41	3 49	91.04	8.96	2.55	2.80	5.17
16.3	6,800	2-40	do	1-20	do	3	26	94	56	107	42 30	38 15	4 15	90.00	10.00	2.52	2.80	5.17
16.3	6.800	2-40	do	1-20	do	3	26	94	56	90	37 00	32 10	4 50	86.95	13.05	2.43	2.80	5.17
16.7	6,800	2-40	do	1-20	do	3	26	94	56	101½	42 30	36 17	6 13	85.36	14.64	2.39	2.80	5.17
16.4	6,800	2-40	do	1-20	do	3	26	94	56	103	42 30	36 49	5 41	86.64	13.36	2.42	2.80	5.17
16.5	6,800	2-40	do	1-20	do	3	11	110	56	182	74 20	55 35	18 45	74.79	25.21	2.45	3.27	5.19
16.2	6,800	2-40	do	1-20	do	3	11	110	56	233	86 40	71 10	15 30	82.12	17.88	2.69	3.27	5.19
16.3	6,800	2-40	do	1-20	do	3	11	110	56	91½	37 30	27 57	9 33	74.53	25.47	2.44	3.27	5.19
16.1	6,800	2-40	do	1-20	do	3	11	110	56	152¼	75 00	46 31	28 29	62.01	37.99	2.03	3.27	5.19
16.3	6,800	2-40	do	1-20	do	3	11	110	56	194¾	86 40	59 29	27 11	68.64	31.36	2.25	3.27	5.19
17.5	3,258	2/24	do	2/24	do	3	12	108	50	201¼	80 20	55 58	24 22	68.8	31.2	2.48	3.60	4.62
17.5	3,528	2/24	do	2/24	do	3	14	108	50	71¼	30 30	19 47	10 43	64.9	35.1	2.34	3.60	4.62
17.5	3,438	2/24	do	2/24	do	3	10	108	50	99¾	40 40	27 43	12 57	68.1	31.9	2.45	3.60	4.62
17.5	3,528	2/24	do	2/24	do	3	14	108	50	88	17 10	10 34	6 36	61.8	38.2	2.22	3.60	4.62
17.5	3,292	2/24	do	2/24	do	3	8	108	50	75	27 20	20 50	6 30	76.2	23.8	2.74	3.60	4.62
17.5	3,292	2/24	do	2/24	do	3	16	108	50	96¼	37 30	26 44	10 46	71.3	28.7	2.57	3.60	4.62

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY WORSTED—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
17.5	3,382	2/24	Worsted	2/24	Worsted	3	17	108	50	49	21 10	13 37	7 33	64.3	35.7	2.31	3.60	4.62
17.0	3,768	2/28	do	2/28	do	3	12	108	58	151¾	63 00	48 54	14 06	77.6	22.4	2.41	3.10	5.36
17.0	3,966	2/28	do	2/28	do	3	8	108	58	78	40 40	25 08	15 32	61.8	38.2	1.92	3.10	5.36
17.0	3,966	2/28	do	2/28	do	3	8	108	58	121½	58 50	39 09	19 41	66.5	33.5	2.41	3.10	5.36
17.0	3,960	2/28	do	2/28	do	3	12	108	58	38	19 10	12 14	6 56	63.9	36.1	1.98	3.10	5.36
17.0	3,966	2/28	do	2/28	do	3	8	108	58	79	40 40	25 28	15 12	62.6	37.4	1.94	3.10	5.36
17.0	3,768	2/28	do	2/28	do	3	12	108	58	94¾	40 40	30 32	10 08	75.1	24.9	2.33	3.10	5.36
17.0	3,960	2/28	do	2/28	do	3	12	108	58	37	18 10	11 55	6 15	65.6	34.4	2.04	3.10	5.36
17.0	3,966	2/28	do	2/28	do	3	8	108	58	75½	40 40	24 20	16 20	59.8	40.2	1.86	3.10	5.36
17.0	4,104	2/28	do	2/28	do	3	12	108	58	126	53 40	40 36	13 04	75.7	24.3	2.35	3.10	5.36
17.0	4,065	2/24	do	2/28	do	3	13	108	56	79	40 40	24 35	16 05	60.4	39.6	1.94	3.21	5.17
17.0	4,065	2/24	do	2/28	do	3	13	108	56	33	13 10	10 16	2 54	78.0	22.0	2.51	3.21	5.36
13.5	4,104	2/40	do	1/20	do	3	8	108	62	99	49 40	34 06	15 34	68.7	31.3	1.99	2.90	5.73
13.5	4,104	2/40	do	1/20	do	3	11	108	62	36	15 30	12 24	3 06	80.0	20.0	2.32	2.90	5.73
13.5	4,104	2/40	do	1/20	do	3	14	108	62	49¾	24 30	17 08	7 22	70.0	30.0	2.08	2.90	5.73
12.2	4,796	2/50	do	2/50	do	3	8	110	68	72½	32 00	26 53	5 07	84.0	16.0	2.27	2.70	5.98
17.75	7,280	2-42	do	2-42	do	3	16	106	60	38	20 30	12 55	7 35	63.0	37.0	1.85	2.94	6.0
12.0	3,996	2-42	do	2-42	do	3	8	96	64	121	58 30	51 38	6 52	88.3	11.7	2.07	2.34	6.4
12.0	3,840	2-42	do	2-42	do	3	8	96	64	144	68 30	61 26	7 04	89.7	10.3	2.10	2.34	6.4
12.0	3,840	2-42	do	2-42	do	3	8	106	64	128	68 30	46 22	22 08	67.7	32.3	1.87	2.76	6.4
12.0	3,996	2-42	do	2-42	do	3	8	106	64	94	50 00	34 03	15 57	68.1	31.9	1.88	2.76	6.4
12.0	3,996	2-42	do	2-42	do	3	12	106	64	145	70 30	52 32	17 58	74.5	25.5	2.06	2.76	6.4
12.0	3,996	2-42	do	2-42	do	3	8	106	64	74	33 00	26 49	6 11	81.3	18.7	2.24	2.76	6.4
12.0	3,996	2-42	do	2-42	do	3	8	106	64	124	60 30	44 55	15 35	74.2	25.8	2.05	2.76	6.4
12.0	3,968	2-42	do	2-42	do	3	8	106	64	72	39 00	26 05	12 55	66.9	33.1	1.85	2.76	6.4
12.0	3,996	2-42	do	2-42	do	3	8	106	64	68	41 00	24 38	16 22	60.1	39.9	1.66	2.76	6.4

12.0	4,160	2-42	do	2-42	do	3	8	106	64	122	63 30	44 12	19 18	69.6	30.4	1.92	2.76	6.4
12.0	3,996	2-42	do	2-42	do	3	8	106	64	138	69 30	40 59	19 31	71.9	28.1	1.99	2.76	6.4
12.0	3,840	2-42	do	2-42	do	3	8	106	66	112	65 30	41 50	23 40	63.9	36.1	1.71	2.68	6.6
12.0	3,840	2-42	do	2-42	do	3	12	90	72	114	67 30	54 43	12 47	81.1	18.9	1.69	2.08	7.2
12.0	3,996	2-42	do	2-42	do	3	12	106	72	103	70 30	41 59	28 31	59.6	40.4	1.46	2.45	7.2
12.0	3,996	2-42	do	2-42	do	3	12	106	72	24	18 30	9 47	8 43	52.9	47.1	1.30	2.45	7.2
13.0	3,840	2-42	do	2-42	do	3	12	92	72	97	62 00	45 33	16 27	73.5	26.5	1.56	2.13	10.6
12.0	3,840	2-42	do	2-42	do	3	14	90	72	71	39 00	34 05	4 55	87.4	12.6	1.82	2.08	10.6
12.0	3,996	2-42	do	2-42	do	3	8	106	76	62	36 30	26 40	9 50	73.1	26.9	1.70	2.32	6.4
12.0	3,360	2-42	do	2-42	do	3	8	106	76	92	43 00	39 35	3 25	92.1	7.9	2.14	2.32	7.6
12.0	3,996	2-42	do	2-42	do	3	8	106	64	65	48 45	23 33	25 12	48.3	51.7	1.33	2.76	6.4
12.0	3,996	2-42	do	2-42	do	3	12	106	64	77	48 45	27 53	20 52	57.2	42.8	1.58	2.76	6.4
13.0	4,721	2-40	do	2-40	do	4	16	110	64	92	41 40	32 07	9 33	77.1	22.9	2.21	2.86	6.4
13.4	4,788	2-40	do	2-40	do	4	12	110	64	85	41 40	29 40	12 00	71.2	28.8	2.04	2.86	6.4
12.7	4,400	2-40	do	2-40	do	3	16	90	64	69	41 40	29 26	12 14	70.6	29.4	1.66	2.34	6.4
13.1	4,540	2-40	do	2-40	do	3	16	110	64	88	41 40	30 43	10 57	73.7	26.3	2.11	2.86	6.4
13.0	4,076	2-40	do	2-40	do	3	16	100	64	50	36 30	19 12	17 18	52.6	47.4	1.37	2.60	6.4
13.3	4,629	2-40	do	2-40	do	3	8	100	64	55	41 40	21 07	20 33	50.7	49.3	1.32	2.60	6.7
13.0	4,342	2-40	do	2-40	do	3	12	100	64	73	41 40	28 02	13 38	67.3	32.7	1.75	2.60	6.7
13.3	4,609	2-40	do	2-40	do	3	12	110	64	89	41 40	31 04	10 36	74.6	25.4	2.14	2.86	6.4
11.1	4,200	2-48	do	2-48	do	2	8	125	72	89	41 40	30 46	10 54	73.8	26.2	2.14	2.89	6.12
11.2	4,200	2-48	do	2-48	do	2	8	125	72	91	41 40	31 27	10 13	75.5	24.5	2.18	2.89	6.12
10.8	3,128	2-30	do	1-24	do	1	8	120	47	119¼	32 15	28 01	4 14	86.9	13.1	3.70	4.26	2.9
11.6	3,256	2-30	do	1-18	do	1	6	124	50	38	12 45	9 11	3 34	72.0	28.0	2.98	4.13	2.84
9.8	3,444	2-38	do	1-24	do	2	7	122	52	59¾	22 30	15 17	7 13	67.9	32.1	2.66	3.91	2.95
12.0	3,466	2-30	do	1-26	do	1	10	120	54	105	34 15	28 21	5 54	82.8	17.2	3.07	3.70	3.37
11.2	3,556	2-30	do	1-26	do	2	12	122	54	76	34 15	20 11	14 04	58.9	41.1	2.22	3.77	3.46
11.0	3,466	2-30	do	1-26	do	1	8	124	54	96¾	34 15	25 17	8 58	73.8	26.2	2.82	3.83	2.98
11.4	3,466	2-30	do	1-26	do	1	14	126	54	71½	33 30	8 23	15 07	54.9	45.1	2.13	3.89	3.56
11.2	3,466	2-36	do	1-21	do	1	12	126	56	101	34 15	26 56	7 19	78.6	21.4	2.95	3.75	3.33
10.0	3,444	2-38	do	1-24	do	2	10	115	56	86¼	34 15	25 12	9 03	73.6	26.4	2.52	3.42	3.49
10.6	3,466	2-36	do	1-26	do	1	8	126	56	110	34 15	29 20	4 55	85.6	14.4	3.21	3.75	3.33
11.2	4,125	2-38	do	1-29	do	1	8	120	60	79½	34 15	23 51	10 24	69.6	30.4	2.32	3.33	3.73
11.2	4,125	2-38	do	1-29	do	1	8	120	60	71¼	34 15	21 23	12 52	62.4	37.6	2.08	3.33	3.63
10.8	4,125	2-38	do	1-29	do	1	8	120	60	45¾	34 15	13 35	20 40	39.7	60.3	1.34	3.33	3.63
10.4	3,556	2-30	do	1-26	do	2	11	120	48	95¼	34 15	22 52	11 23	66.8	33.2	2.78	4.17	3.41
11.6	3,556	2-30	do	1-26	do	2	13	116	54	71½	34 15	19 58	14 17	58.3	41.7	2.09	3.58	3.37

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY WORSTED—Continued.

FEMALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
18.8	5,184	2/40	Worsted	3½	Woolen	3	24	104	48	79½	35 50	22 01	13 49	61.4	38.6	2.22	3.61	9.76
19.4	5,184	2/40	do	3½	do	3	18	104	48	106½	40 10	29 29	10 41	73.4	26.6	2.65	3.61	9.76
15.6	3,240	2/26	do	1/14	Worsted	4	11	106	52	76	40 40	22 22	18 18	55.0	45.0	1.87	3.4	6.12
16.8	3,520	2/26	do	1/13	do	3	15	106	54	52	20 20	15 53	4 27	78.1	21.9	2.56	3.27	5.74
16.0	3,672	2/26	do	1/13	do	3	16	106	56	70	35 30	22 11	13 19	62.5	37.5	1.97	3.15	6.49
17:1	4,032	2/26	do	1/14	do	4	16	106	60	61	30 30	20 43	9 47	67.9	32.1	2.00	2.94	6.88
13.1	3,933	2/36	do	1/20	do	3	12	106	60	42¾	20 20	14 31	5 49	71.4	28.6	2.10	2.94	6.31
12.4	4,420	2/36	do	1/24	do	3	16	106	60	55	25 20	12 52	12 28	50.8	49.2	2.17	2.94	6.31
16.2	2,688	2-20	do	2-20	do	2	4	128	40	91⅞	25 40	17 54	7 46	69.7	30.3	3.58	5.13	3.6
16.4	2,688	2-20	do	2-20	do	3	6	98	40	103⅛	30 20	25 29	4 51	83.4	16.6	3.40	4.08	3.69
16.0	2,688	2-20	do	2-20	do	3	12	98	40	115⅝	34 50	28 22	6 28	82.3	17.7	3.32	4.08	3.69
16.6	2,688	2-20	do	2-20	do	3	8	98	40	114⅝	34 50	28 06	6 44	80.7	19.3	3.29	4.08	4.19
16.6	3,240	2-22	do	2-22	do	5	8	98	48	18	6 30	5 29	1 01	81.3	18.7	2.77	3.4	9.42
16.8	6,712	2-40	do	2-40	do	5	16	98	56	25	12 10	8 53	3 17	73.0	27.0	2.03	2.82	11.15
17.8	7,344	2-40	do	2-40	do	5	18	98	56	62¼	34 30	22 07	12 23	64.0	36.0	1.80	2.82	11.15
17.4	6,912	2-40	do	2-40	do	5	16	98	56	57⅜	26 50	20 25	6 25	76.1	23.9	2.14	2.82	11.15
27.3	2,240	2	Woolen	1½	Woolen	3	8	94	24	72	33 50	11 02	22 48	32.6	67.4	2.13	6.53	5.36
18.3	9,048	2/48	Worsted	2/48	Worsted	5	24	92	70	33	23 30	15 04	8 26	64.1	35.9	1.40	2.19	12.5
17.75	7,476	2-42	do	2-42	do	3	16	106	60	138	70 30	41 52	28 38	59.0	41.0	1.96	2.94	6.0
12.0	3,996	2-42	do	2-42	do	3	8	90	64	51	28 00	21 46	6 14	77.7	22.3	1.82	2.34	9.4
12.0	3,996	2-42	do	2-42	do	3	8	106	64	100	64 00	36 14	27 46	56.6	43.4	1.56	2.76	6.4
12.0	3,996	2-42	do	2-42	do	3	12	106	64	121	70 30	43 50	26 40	62.2	37.8	1.72	2.76	6.4
12.0	3,840	2-42	do	2-42	do	3	12	106	64	138	70 30	49 59	20 31	70.9	29.1	1.96	2.76	6.4
12.0	3,360	2-42	do	2-42	do	3	8	106	64	92	53 30	33 20	20 10	62.3	37.7	1.72	2.76	6.4
12.0	3,996	2-42	do	2-42	do	3	12	106	64	119	70 30	43 07	27 23	61.2	38.8	1.69	2.76	6.4
12.0	3.996	2-42	do	2-42	do	3	8	106	64	67	49 30	24 16	25 14	49.0	51.0	1.35	2.76	6.4

12.0	3,840	2-42	....do..........	2-42	....do..........	3	8	106	64	97	50 00	35 08	14 52	70.3	29.7	1.94	2.76	6.4
12.0	3,840	2-42	....do..........	2-42	....do..........	3	14	100	68	111	68 30	45 14	23 16	66.0	34.0	1.62	2.45	6.8
12.0	3,996	2-42	....do..........	2-42	....do..........	3	16	106	68	108	70 30	41 34	28 56	59.0	41.0	1.53	2.6	6.8
12.0	3,340	2-42	....do..........	2-42	....do..........	3	14	106	68	80	46 30	30 47	15 43	66.2	33.8	1.72	2.6	6.8
12.0	3,360	2-42	....do..........	2-42	....do..........	3	16	106	68	15	12 30	5 46	6 44	46.1	53.9	1.20	2.6	6.8
12.0	3,840	2-42	....do..........	2-42	....do..........	3	12	106	72	120	69 30	48 55	20 35	70.4	29.6	1.73	2.45	7.2
12.0	3,996	2-42	....do..........	2-42	....do..........	3	12	106	72	96	68 00	39 07	28 53	57.5	42.5	1.41	2.45	7.2
12.0	3,996	2-42	....do..........	2-42	....do..........	3	14	106	76	115	68 00	49 28	18 32	72.8	27.2	1.69	2.32	7.6
10.3	3,744	2/42	....do..........	1/28	....do..........	3	8	120	58	65¾	22 00	19 04	2 56	86.7	13.3	2.99	3.45	4.62
10.2	3,780	2/42	....do..........	1/28	....do..........	3	8	110	58	105½	48 45	33 23	15 22	68.5	31.5	2.16	3.16	4.62
17.0	4,064	2/28	....do..........	1/16	....do..........	3	16	106	60	101½	49 15	34 28	14 47	70.0	30.0	2.06	2.94	4.73
16.8	3,840	2/28	....do..........	1/15	....do..........	3	8	106	60	147	83 00	49 56	33 04	60.2	39.8	1.77	2.94	4.73
11.4	3,968	2/40	....do..........	1/24	....do..........	3	8	118	64	120½	48 45	39 18	9 32	80.4	19.6	2.47	3.07	4.95
11.5	4,000	2/40	....do..........	1/24	....do..........	3	12	118	64	156½	92 30	50 56	41 34	55.1	44.9	1.61	3.07	4.95
16.0	4,240	2/32	....do..........	2/32	....do..........	3	8	118	64	217½	90 15	74 02	16 13	82.0	18.0	2.35	3.07	4.95
16.0	4,316	2/32 2/60	....do..........	2/32	....do..........	3	19	108	64	25¾	15 15	9 10	6 06	60.0	40.0	1.69	2.81	4.95
15.9	3,734	2/28 2/32	....do..........	2/32	....do..........	3	8	108	60	50¼	25 45	16 45	9 00	65.0	35.0	1.95	3.0	4.73
11.6	3,362	2-30	....do..........	1-20	....do..........	1	10	125	54	96	41 40	24 53	16 47	59.7	40.3	2.30	3.86	4.59
11.7	3,328	2-30	....do..........	1-20	....do..........	1	8	125	54	106	41 40	27 29	14 11	66.0	34.0	2.54	3.86	4.59
12.0	3,362	2-30	....do..........	1-20	....do..........	1	12	125	54	86	41 40	22 17	19 23	53.5	46.5	2.06	3.86	4.59
11.8	3,362	2-30	....do..........	1-20	....do..........	1	12	125	54	119	41 40	30 50	10 50	74.0	26.0	2.86	3.86	4.59
12.0	3,288	2-30	....do..........	1-20	....do..........	1	16	125	54	81	41 40	21 00	20 40	50.4	49.6	1.94	3.86	4.59
12.2	3,288	2-30	....do..........	1-20	....do..........	1	8	125	54	84	41 40	21 46	19 54	52.2	47.8	2.02	3.86	4.59
16.0	6,600	2-40	....do..........	2-40	....do..........	3	13	90	56	50	41 40	18 40	23 00	44.8	55.2	1.20	2.68	11.2
11.4	3,688	2-36	....do..........	1-20	....do..........	1	16	125	58	100	41 40	27 50	13 50	66.8	33.2	2.40	3.59	4.93
11.6	3,780	2-36	....do..........	1-20	....do..........	1	10	125	58	106	41 40	29 31	12 09	70.8	29.2	2.54	3.59	4.93
11.6	3,684	2-36	....do..........	1-20	....do..........	1	12	125	58	93	41 40	25 53	15 47	62.1	37.9	2.23	3.59	4.93
11.9	3,688	2-36	....do..........	1-20	....do..........	1	8	125	58	89	41 40	24 47	16 53	59.5	40.5	2.14	3.59	4.93
12.0	3,684	2-32	....do..........	1-20	....do..........	1	12	125	58	89	41 40	24 47	16 53	59.5	40.5	2.14	3.59	4.93
11.8	3,688	2-36	....do..........	1-20	....do..........	1	8	125	58	103	41 40	28 40	13 00	68.8	31.2	2.47	3.59	4.93
12.1	3,688	2-32	....do..........	1-20	....do..........	1	12	125	58	104	41 40	28 57	12 43	69.5	30.5	2.50	3.59	4.93
11.7	3,684	2-36	....do..........	1-20	....do..........	1	10	125	58	92	41 40	25 37	16 03	61.5	38.5	2.21	3.59	4.93
11.6	4,326	60-2 2-40	....do..........	2-40	....do..........	2	10	125	60	58	41 40	16 42	24 58	40.1	59.9	1.39	3.47	5.9
11.6	4,068	2-40	....do..........	1-20	....do..........	1	10	125	60	99	41 40	28 31	13 09	68.4	31.6	2.38	3.47	5.1
12.0	4,326	2-40	....do..........	2-40	....do..........	2	12	125	60	55	26 00	15 50	10 10	60.9	39.1	2.12	3.47	5.19
11.8	4,742	2-40	....do..........	2-40	....do..........	3	14	110	60	60	37 15	19 38	17 37	52.7	47.3	1.61	3.06	6.0
11.6	3,474	2-36	....do..........	1-20	....do..........	3	16	90	60	63	33 15	25 12	8 03	75.8	24.2	1.89	2.5	6.3
11.6	4,187	2-40	....do..........	2-40	....do..........	2	12	125	60	73	36 15	21 01	15 14	58.0	42.0	2.01	3.47	5.9
11.8	4,322	2-40	....do..........	2-40	....do..........	4	12	110	60	98	41 40	32 04	9 36	77.0	23.0	2.35	3.06	6.0
11.8	4,076	2-40	....do..........	2-40	....do..........	2	8	125	60	71	41 40	20 27	21 13	49.1	50.9	1.70	3.47	5.9
13.3	4,540	2-40	....do..........	2-40	....do..........	4	12	110	64	96	41 40	33 31	8 09	80.4	19.6	2.30	2.86	6.4
13.0	4,540	2-40	....do..........	2-40	....do..........	4	12	110	64	78	41 40	27 14	14 26	65.4	34.6	1.87	2.86	6.4
13.0	4,342	2-40	....do..........	2-40	....do..........	3	12	110	64	84	41 40	29 19	12 21	70.4	29.6	2.02	2.86	6.4
15.0	2,950	2/24	....do..........	2/24	....do..........	2	14	120	44	117½	40 40	25 50	14 50	63.5	36.5	2.89	4.55	3.8
7.6	2,840	2/36	....do..........	1/28	....do..........	1	8	130	44	141	38 20	28 38	9 42	74.7	25.3	3.68	4.92	2.57
14.9	2,950	2/24	....do..........	2/24	....do..........	2	8	120	44	24	7 50	5 17	2 33	67.4	32.6	3.06	4.55	3.8
10.8	3,690	2/36	....do..........	1/20	....do..........	2	10	130	52	84½	39 30	20 23	19 07	53.7	46.3	2.14	4.17	4.0
10.7	3,876	2/26 60/2	....do..........	1/20	....do..........	2	10	130	52	93	40 40	22 19	18 21	54.9	45.1	2.28	4.17	4.0

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY WORSTED—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
10.8	3,690	2/36	Worsted	1/20	Worsted	2	8	130	52	94	39 30	22 34	16 56	57.1	42.9	2.38	4.17	4.0
10.8	3,690	2/36	do	1/20	do	2	16	130	52	43½	15 40	10 26	5 14	76.4	23.6	2.78	4.17	4.0
10.7	3,990	2/36 60/2	do	1/20	do	2	13	130	52	110½	39 40	26 31	13 09	66.8	33.2	2.79	4.17	4.0
10.7	3,690	2/36 2/60	do	1/20	do	2	10	130	52	114	40 40	27 22	13 18	67.2	32.8	2.79	4.17	4.0
10.8	3,876	2/36 60/2	do	1/20	do	2	12	130	52	110	37 50	26 23	11 27	69.7	30.3	2.92	4.17	4.0
10.6	3,690	2/36 2/60	do	1/20	do	2	10	130	52	96½	31 00	23 09	7 51	74.7	25.3	3.11	4.17	4.0
10.6	3,690	2/36 2/60	do	1/20	do	2	10	130	52	107	39 40	25 41	13 59	64.6	35.4	2.70	4.17	4.0
10.9	3,690	2/36	do	1/20	do	2	8	130	52	40	17 50	9 35	8 15	53.6	46.4	2.24	4.17	4.0
10.6	3,690	2/36	do	1/20	do	2	8	130	52	89	30 30	21 22	9 08	69.6	30.4	2.91	4.17	4.0
10.7	3,740	2/36 60/2	do	1/20	do	2	8	130	52	125	40 40	29 59	10 41	73.0	27.0	3.06	4.17	4.0
10.6	3,990	2/36 60/2	do	1/20	do	2	13	130	52	109	39 10	26 10	13 00	66.8	33.2	2.78	4.17	4.0
10.8	3,690	2/36	do	1/20	do	2	13	130	52	108	38 40	25 55	12 45	67.0	33.0	2.79	4.17	4.0
10.8	3,990	2/36 60/2	do	1/20	do	2	13	130	52	98	40 40	23 31	17 09	57.6	42.4	2.40	4.17	4.0
10.8	3,690	2/36	do	1/20	do	2	8	130	52	96	32 00	23 02	8 58	72.0	28.0	3.00	4.17	4.0
10.8	3,690	2/36 60/2	do	1/20	do	2	10	130	52	75	34 50	18 00	16 50	51.7	48.3	2.15	4.17	4.0
10.6	3,690	2/36	do	1/20	do	2	10	130	52	136	40 40	32 38	8 02	80.2	19.8	3.33	4.17	4.0

10.5	3,690	2/36 2/60	....do..........	1/20	.....do.........	2	10	130	52	120	38 40	28 47	9 53	74.4	25.6	3.10	4.17	4.0
10.8	3,740	2/36 60/2	....do..........	1/20	.....do.........	2	8	130	52	132	40 40	31 41	8 59	77.9	22.1	3.23	4.17	4.0
10.5	3,690	2/36 60/2	....do..........	1/20	.....do.........	2	8	130	52	101	38 10	24 14	13 56	63.5	36.5	2.65	4.17	4.0
10.8	3,850	2/36 60/2	....do..........	1/20	.....do.........	2	8	130	52	67	25 50	16 04	9 46	61.8	38.2	2.59	4.17	4.0
10.3	3,920	2/36 60/2	....do..........	1/20	.....do.........	2	8	130	52	119	40 40	28 34	12 06	70.2	29.8	2.91	4.17	4.0
10.5	3,690	2/36 60/2	....do..........	1/20	.....do.........	2	8	130	52	90	40 40	22 00	18 40	54.0	46.0	2.20	4.17	4.0
10.9	3,690	2/36	.....do..........	1/20	.....do.........	2	16	130	52	112	40 40	26 53	13 47	66.1	33.9	2.74	4.17	4.0
10.5	3,690	2/36 60/2	....do..........	1/20	.....do.........	2	8	130	52	100	40 40	24 00	16 40	59.1	40.9	2.45	4.17	4.0
10.7	3,990	2/36 60/2	....do..........	1/20	.....do.........	2	13	130	52	96	38 10	23 02	15 08	60.3	39.7	2.52	4.17	4.0
10.7	3,690	2/36	.....do..........	1/20	.....do.........	2	8	130	52	106	40 40	25 26	15 14	62.5	37.5	2.60	4.17	4.0
10.7	3,990	2/36 60/2	....do..........	1/20	.....do.........	2	13	130	52	31	18 20	7 26	10 54	40.5	59.5	1.71	4.17	4.0
10.7	3,692	2/36 60/2	....do..........	1/20	.....do.........	2	12	130	52	62	32 00	14 53	17 07	46.5	53.5	1.94	4.17	4.0
10.8	3,730	2/36 60/2	....do..........	1/20	.....do.........	2	15	130	52	87	35 30	20 53	14 37	58.8	41.2	2.45	4.17	4.0
10.6	3,690	2/36 2/60	....do..........	1/20	.....do.........	2	10	130	52	116	40 40	27 50	12 50	68.4	31.6	2.84	4.17	4.0
10.8	3,690	2/36	.....do..........	1/20	.....do.........	2	8	130	52	119	40 40	28 36	12 04	70.3	29.7	2.91	4.17	4.0
10.9	3,690	2/36	.....do..........	1/20	.....do.........	2	16	130	52	103	40 40	24 43	15 57	60.8	39.2	2.52	4.17	4.0
10.7	3,990	2/36 60/2	....do..........	1/20	.....do.........	2	13	130	52	111½	39 30	27 36	11 54	80.8	19.2	2.82	4.17	4.0
10.7	3,690	2/36	.....do..........	1/20	.....do.........	2	8	130	52	121½	40 40	29 10	11 30	71.4	28.6	2.98	4.17	4.0
10.8	3,690	2/36 60/2	....do..........	1/20	.....do.........	2	8	130	52	130	40 40	31 11	9 29	76.7	23.3	3.18	4.17	4.0
10.7	3,990	2/36 60/2	....do..........	1/20	.....do.........	2	13	130	52	133	40 40	31 55	8 45	78.5	21.5	3.26	4.17	4.0
10.8	3,990	2/36 60/2	....do..........	1/20	.....do.........	2	13	130	52	244	75 40	34 34	41 06	45.7	54.3	3.22	4.17	4.0
10.7	3,690	2/36	.....do..........	1/20	.....do.........	2	8	130	52	92	40 40	22 05	18 35	54.3	45.7	2.26	4.17	4.0
10.8	3,690	2/36	.....do..........	1/20	.....do.........	2	16	130	52	119	35 40	28 34	7 06	80.1	19.9	3.34	4.17	4.0
10.8	3,690	2/36	.....do..........	1/20	.....do.........	2	8	130	52	265½	81 20	63 43	17 37	78.3	21.7	3.26	4.17	4.0
10.9	3,880	2/36 60/2	....do..........	1/20	.....do.........	2	10	130	52	252½	81 20	60 36	20 44	74.5	25.5	3.10	4.17	4.0
10.7	3,690	2/36 2/60	....do..........	1/20	.....do.........	2	10	130	52	184½	79 20	44 16	35 04	55.8	44.2	2.33	4.17	4.0
11.5	3,890	2/36 60/2	....do..........	1/20	.....do.........	2	8	120	54	190	66 00	51 18	14 42	77.7	22.3	2.88	3.70	4.24
11.1	3,696	2/36 60/2	....do..........	1/20	.....do.........	2	8	120	54	43	18 20	11 37	6 43	63.4	36.6	3.35	3.70	4.24
11.1	3,696	2/36	.....do..........	1/20	.....do.........	2	8	120	54	96	37 40	25 56	11 44	65.3	34.7	2.55	3.70	4.24
13.5	7,630	2/36 2/40	....do..........	1/28	.....do.........	2	12	130	56	51½	24 20	13 19	11 01	54.7	45.3	2.12	3.87	4.16
13.6	7,630	2/36 2/40	....do..........	1/28	.....do.........	2	12	130	56	36	17 50	9 30	8 20	53.3	46.7	2.02	3.87	4.16

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY WORSTED—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
											Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.			Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
10.7	3,500	2/26	Worsted	1/20	Worsted	2	16	130	56	91	40 40	23 31	17 09	57.8	42.2	2.23	3.87	3.86
10.3	3,200	2/36	do	1/20	do	1	8	130	56	68	24 50	17 35	7 15	70.8	29.2	2.74	3.87	3.8
10.3	3,200	2/36	do	1/20	do	2	12	130	56	116	40 40	29 59	10 41	73.7	26.3	2.85	3.87	3.8
8.8	3,540	2/36	do	1/36	do	2	8	130	60	118	40 40	32 40	8 00	80.3	19.7	2.90	3.61	4.4
11.0	3,466	2-30	do	1-26	do	1	12	126	55	81¾	34 15	21 25	12 50	62.5	37.5	2.39	3.82	3.35
11.5	3,520	1-21	do	1-20	do	1	12	122	55	27½	10 00	7 26	2 34	74.3	25.7	2.75	3.70	3.46
11.0	3,466	2-30	do	1-26	do	1	8	112	56	99¼	34 15	29 47	4 28	87.0	13.0	2.90	3.33	3.27
11.8	3,453	2-30	do	1-26	do	1	12	118	51	77	32 30	19 58	12 32	61.4	38.6	2.37	3.86	3.24
11.6	3,453	2-30	do	1-26	do	1	12	120	51	72½	34 15	18 29	15 46	54.0	46.0	2.12	3.92	3.35
10.7	3,220	2-30	do	1-24	do	1	10	122	52	92¼	28 00	23 35	4 25	84.3	15.7	3.29	3.91	3.25
12.0	3,466	2-30	do	1-26	do	1	11	122	52	76	34 15	19 26	14 49	56.7	43.3	2.22	3.91	3.3
11.0	3,220	2-30	do	1-24	do	1	12	118	52	87½	34 15	23 08	11 07	67.5	32.5	2.55	3.78	3.24
11.4	3,220	2-30	do	1-24	do	1	10	116	52	65½	24 15	17 37	6 38	72.6	27.4	2.70	3.71	3.25
12.0	3,466	2-30	do	1-26	do	1	12	116	52	82¾	34 15	22 16	11 59	65.0	35.0	2.42	3.71	3.35
10.6	3,220	2-30	do	1-24	do	1	8	117	52	76¾	34 15	20 28	13 47	59.8	40.2	2.24	3.75	3.35
11.0	3,220	2-30	do	1-24	do	1	12	126	52	64½	29 15	15 58	13 17	54.6	45.4	2.21	4.04	3.35
12.0	3,466	2-30	do	1-26	do	1	12	124	52	69	34 15	17 22	16 53	50.7	49.3	2.01	3.97	3.35
11.2	3,220	2-30	do	1-24	do	1	12	124	52	69½	32 15	17 29	14 46	54.2	45.8	2.16	3.97	3.35
10.8	3,220	2-30	do	1-24	do	1	8	116	52	65½	31 15	17 37	13 38	53.2	46.8	2.10	3.71	3.05
11.8	3,466	2-30	do	1-26	do	1	12	116	52	56½	29 00	15 12	13 48	52.4	47.6	1.95	3.72	3.35
11.0	3,220	2-30	do	1-24	do	1	12	112	52	104½	34 15	29 07	5 08	85.0	15.0	3.05	3.59	3.35
10.9	3,220	2-30	do	1-24	do	1	18	120	52	65½	25 15	17 02	8 13	67.4	32.6	2.59	3.85	3.4
12.0	3,466	2-30	do	1-26	do	1	12	120	52	169¾	68 30	44 08	24 22	64.4	35.6	2.38	3.85	3.35
11.0	3,220	2-30	do	1-24	do	1	10	120	52	74	34 15	19 14	15 01	56.2	43.8	2.16	3.85	3.25
11.6	3,220	2-30	do	1-24	do	1	12	120	52	48¾	21 30	12 41	8 49	59.0	41.0	2.27	3.85	3.35
10.7	3,220	2-30	do	1-24	do	1	12	120	52	87	32 15	22 37	9 38	70.2	29.8	2.70	3.85	3.35
10.0	3,220	2-30	do	1-24	do	1	12	120	52	70	32 15	18 12	14 03	56.4	43.6	2.17	3.85	3.51
10.9	3,220	2-30	do	1-24	do	1	13	120	52	54½	25 15	14 10	11 05	56.1	43.9	2.16	3.85	3.4

12.3	3,466	2-30	.....do..........	1-26	.....do..........	1	12	120	52	93	34 15	24 11	10 04	70.6	29.4	2.72	3.85	3.35
11.0	3,220	3-30	.....do..........	1-24	.....do..........	1	13	120	52	75	34 00	19 30	14 30	57.4	42.6	2.21	3.85	3.4
12.2	3,466	2-30	.....do..........	1-26	.....do..........	1	12	120	52	93¾	34 15	24 23	9 52	71.2	28.8	2.74	3.85	3.35
10.7	3.220	2-30	.....do..........	1-24	.....do..........	1	11	120	52	89½	34 15	23 16	10 59	67.9	32.1	2.61	3.85	3.3
8.7	3,031	2-38	.....do..........	1-25	.....do..........	1	8	120	48	84	23 15	20 10	3 05	86.7	13.3	3.61	4.17	2.9
11.2	3,466	2-30	.....do..........	1-26	.....do..........	1	8	126	60	98½	34 15	28 04	6 11	82.0	18.0	2.87	3.50	2.98
9.3	3,144	2-36	.....do..........	1-26	.....do..........	1	4	118	50	89	33 00	22 38	10 22	68.6	31.4	2.70	3.93	2.92
11.8	3,453	2-30	.....do..........	1-26	.....do..........	1	12	120	51	80	34 15	20 24	13 51	59.6	40.4	2.34	3.92	3.35
11.8	3,453	2-30	.....do..........	1-26	.....do..........	1	12	120	51	48	21 45	12 14	9 31	56.3	43.7	2.21	3.92	3.35
10.2	3,453	2-30	.....do..........	1-26	.....do..........	1	12	126	52	83½	34 15	20 37	13 38	60.2	39.8	2.43	4.04	3.35
10.7	3,220	2-30	.....do..........	1-24	.....do..........	1	10	122	52	86½	24 30	22 07	2 23	90.3	9.7	3.53	3.91	3.25
12.2	3,466	2-30	.....do..........	1-26	.....do..........	1	12	126	52	96½	34 15	23 54	10 21	69.8	30.2	2.82	4.04	3.35
10.7	3,220	2-30	.....do..........	1-24	.....do..........	1	8	128	52	90¼	34 15	22 04	12 11	64.4	35.6	2.64	4.10	3.16
11.8	3,466	2-30	.....do..........	1-26	.....do..........	1	12	120	52	94	31 30	24 26	7 04	77.6	22.4	2.98	3.85	3.35
11.2	3,220	2-30	.....do..........	1-24	.....da..........	1	13	120	52	87½	34 15	22 49	11 26	66.6	33.4	2.56	3.85	3.4
10.7	3,222	2-36	.....do..........	1-24	.....do..........	1	12	118	52	98½	34 15	26 02	8 13	76.0	24.0	2.88	3.78	3.24
11.4	3,466	2-30	.....do..........	1-26	.....do..........	1	8	126	54	95½	34 30	24 31	9 59	71.1	28.9	2.78	3.89	3.9
11.2	3,466	2-30	.....do..........	1-26	.....do..........	1	8	124	54	91¾	34 15	23 58	10 17	70.0	30.0	2.68	3.83	3.27
11.6	3,466	2-30	.....do..........	1-26	.....do..........	1	8	120	54	78	32 15	21 04	11 11	65.3	34.7	2.42	3.70	3.62
11.4	3,466	2-30	.....do..........	1-26	.....do..........	1	12	126	54	102½	34 15	26 25	7 50	77.1	22.9	3.00	3.89	3.35
11.6	3,436	2-30	.....do..........	1-26	.....do..........	1	8	120	54	76½	33 15	20 40	12 35	62.2	37.8	2.30	3.70	3.27
11.2	3,466	2-30	.....do..........	1-26	.....do..........	1	8	118	54	96½	34 15	26 30	7 45	77.4	22.6	2.82	3.64	3.16
11.4	3,466	2-30	.....do..........	1-26	.....do..........	1	8	118	54	87¾	33 00	23 58	9 02	72.6	27.4	2.65	3.64	3.16
11.4	3,466	2-30	.....do..........	1-26	.....do..........	1	12	118	54	87	34 15	23 53	10 22	69.6	30.4	2.54	3.64	3.35
11.2	3,466	2-30	.....do..........	1-26	.....do..........	1	8	120	54	90½	34 15	24 26	9 49	71.3	28.7	2.64	3.70	3.16
11.2	3,466	2-30	.....do..........	1-26	.....do..........	1	12	120	54	90¾	34 15	24 22	9 53	71.1	28.9	2.64	3.70	3.46
11.4	3,466	2-30	.....do..........	1-26	.....do..........	1	12	118	54	55½	34 15	22 20	11 55	65.2	34.8	1.61	2.47	3.46
11.6	3,466	2-30	.....do..........	1-26	.....do..........	1	14	120	54	53½	34 15	14 23	19 52	42.0	58.0	1.55	3.70	3.56
11.1	3,466	2-30	.....do..........	1-26	.....do..........	1	8	120	54	90½	34 15	24 30	9 45	71.5	28.5	2.65	3.70	3.27
11.4	3,466	2-38	.....do..........	1-26	.....do..........	1	8	120	54	87½	34 15	23 38	10 37	69.0	31.0	2.55	3.70	3.27
11.4	3,466	2-30	.....do..........	1-26	.....do..........	1	8	124	54	92½	32 30	24 06	8 24	74.2	25.8	2.84	3.83	2.98
11.2	3,466	2-30	.....do..........	1-26	.....do..........	1	8	122	54	81½	30 30	21 38	8 52	71.0	29.0	2.67	3.77	3.27
11.4	3,466	2-30	.....do..........	1-26	.....do..........	1	8	134	54	81	34 15	19 35	14 40	57.2	42.8	2 36	4.14	2.98
12.2	3,610	2-26	.....do..........	1-24	.....do..........	1	12	118	54	60	24 30	18 07	6 23	73.9	26.1	2.69	3.64	3.35
11.4	3,466	2-30	.....do..........	1-26	.....do..........	1	12	116	54	96½	34 15	26 57	7 18	78.7	21.3	2.82	3.58	3.46
12.2	3,466	2-30	.....do..........	1-26	.....do..........	1	14	122	54	87	34 15	23 07	11 08	67.5	32.5	2.54	3.77	3.56
12.0	3,466	2-30	.....do..........	1-26	.....do..........	1	10	116	54	75	34 15	20 57	13 18	61.2	38.8	2.19	3.58	3.37
11.8	3,466	2-30	.....do..........	1-26	.....do..........	1	12	120	54	93¾	34 15	25 19	8 56	73.9	26.1	2.74	3.70	3.46
12.3	3,610	1-21	.....do..........	1-20	.....do..........	1	12	120	54	95½	34 15	25 47	8 28	75.3	24.7	2.79	3.70	3.46
11.4	3,466	2-30	.....do..........	1-26	.....do..........	1	8	120	54	90¼	34 15	24 30	9 45	71.5	28.5	2.65	3.70	3.27
12.0	3,466	2-30	.....do..........	1-26	.....do..........	1	12	120	54	58	29 00	15 40	13 20	54.0	46.0	2.00	3.70	3.56
11.6	3,466	2-30	.....do..........	1-26	.....do..........	1	12	120	54	67¾	34 15	18 17	15 58	53.4	46.6	1.98	3.70	3.46
12.0	3,466	2-30	.....do..........	1-26	.....do..........	1	10	120	54	61	34 15	16 28	17 47	48.1	51.9	1.78	3.70	3.37
12.0	3,520	1-20	.....do..........	1-20	.....do..........	1	10	120	54	36	22 15	9 43	12 32	43.7	56.3	1.62	3.70	3.37
11.6	3,466	2-30	.....do..........	1-26	.....do..........	1	13	120	54	84	34 15	22 41	11 34	66.2	33.8	2.45	3.70	3.51
12.0	3,466	2-30	.....do..........	1-29	.....do..........	1	10	120	54	55	24 15	14 51	9 24	61.2	38.8	2.27	3.70	3.37
10.8	3,128	2-30	.....do..........	1-24	.....do..........	1	8	120	47	119½	32 15	28 01	4 14	83.8	16.2	3.70	4.26	2.9
10.6	3,128	2-30	.....do..........	1-24	.....do..........	1	9	118	47	103	32 30	24 37	7 53	75.7	24.3	3.17	4.18	2.79
10.3	3,128	2-30	.....do..........	1-24	.....do..........	1	8	120	47	72½	34 15	16 59	17 16	49.6	50.4	2.11	4.26	2.86
11.2	3,256	2-30	.....do..........	1-18	.....do..........	1	12	122	48	88½	13 30	9 02	4 28	66.9	33.1	2.83	4.24	2.84
11.4	3,256	2-30	.....do..........	1-18	.....do..........	2	6	122	50	78½	34 15	19 18	14 57	56.4	43.6	2.29	4.07	2.84
11.6	3,256	2-30	.....do..........	1-18	.....do..........	1	6	125	50	40½	12 00	9 43	2 17	81.0	19.0	3.38	4.17	2.84
10.8	3,080	2-30	.....do..........	1-24	.....do..........	1	8	128	52	95½	28 15	23 13	5 02	82.2	17.8	3.37	4.10	3.49

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY WORSTED—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
8.2	2,676	2-38	Worsted	1-24	Worsted	2	8	120	52	53½	22 30	13 55	8 35	61.8	38.2	2.38	3.85	3.35
9.6	3,444	2-38	do	1-24	do	2	7	124	52	90¾	28 30	22 50	5 40	80.1	19.9	3.18	3.97	2.95
11.6	3,466	2-30	do	1-26	do	1	12	126	54	77	34 15	19 48	14 27	57.8	42.2	2.25	3.89	3.46
11.6	3,466	2-30	do	1-26	do	1	8	122	54	96½	34 15	25 38	8 37	74.8	25.2	2.82	3.77	2.98
11.2	3,556	2-30	do	1-26	do	1	12	124	54	86	32 15	22 28	9 47	69.7	30.3	2.67	3.83	3.46
11.4	3,466	2-30	do	1-26	do	1	8	124	54	82½	34 15	21 34	12 41	63.0	37.0	2.41	3.83	3.27
11.2	3,466	2-30	do	1-26	do	1	12	120	54	95½	34 15	25 47	8 28	75.3	24.7	2.79	3.70	3.46
11.0	3,556	2-30	do	1-26	do	2	12	120	54	54½	34 15	14 43	19 32	43.0	57.0	1.59	3.70	3.46
11.1	3,466	2-30	do	1-26	do	1	12	120	54	78½	34 15	21 12	13 03	61.9	38.1	2.29	3.70	3.46
11.4	3,466	2-30	do	1-21	do	1	8	126	56	80	34 15	21 20	12 55	62.3	37.7	2.34	3.75	3.33
10.8	3,466	2-36	do	1-21	do	1	12	124	56	86½	24 45	23 26	1 19	94.7	5.3	3.49	3.69	3.33
11.2	3,466	2-30	do	1-26	do	1	12	124	56	99	34 15	26 50	7 25	78.3	21.7	2.89	3.69	3.59
11.0	3,466	2-36	do	1-21	do	1	8	120	56	89	34 15	24 55	9 20	72.8	27.2	2.60	3.57	3.05
10.8	3,466	2-30	do	1-26	do	1	12	120	56	93	34 15	26 02	8 13	76.0	24.0	2.72	3.57	3.59
11.3	3,466	2-30	do	1-26	do	1	15	120	56	77	34 15	21 34	12 41	62.9	37.1	2.25	3.57	3.6
11.4	3,466	2-36	do	1-21	do	1	8	128	56	95	34 15	24 56	9 19	72.8	27.2	2.77	3.81	3.33
11.2	3,466	2-36	do	1-26	do	2	8	126	56	50	25 00	13 20	11 40	53.3	46.7	2.00	3.75	3.33
11.6	3,976	2-38	do	1-24	do	1	11	126	56	73½	34 30	19 36	14 54	56.8	43.2	2.13	3.75	3.4
11.0	3,466	2-36	do	1-26	do	1	12	120	56	81	34 15	22 41	11 34	66.2	33.8	2.36	3.57	3.33
10.6	3,611	2-36	do	1-29	do	1	8	126	56	92½	34 15	24 40	9 35	72.0	28.0	2.70	3.75	3.33
12.0	3,466	2-36	do	1-21	do	1	8	128	56	49½	23 30	12 59	10 31	55.3	44.7	2.11	3.81	3.1
11.6	3,976	2-38	do	1-24	do	2	11	116	56	53¼	30 45	15 25	15 20	50.1	49.9	1.73	3.45	3.1
11.0	3,611	2-36	do	1-26	do	1	12	120	56	22	8 30	6 10	2 20	72.5	27.5	2.59	3.57	3.33
11.2	3,466	2-56	do	1-21	do	1	8	120	56	82¼	34 15	23 02	11 13	67.2	32.8	2.40	3.57	3.4
10.6	4,125	2-38	do	1-29	do	1	8	122	60	87¾	33 30	25 53	7 37	77.1	22.9	2.62	3.39	3.63
11.2	4,125	2-38	do	1-29	do	1	10	120	60	67	34 15	20 06	14 09	58.7	41.3	1.96	3.33	3.73
11.6	4,125	2-38	do	1-29	do	1	8	112	58	45½	18 15	14 08	4 07	77.4	22.6	2.49	3.22	3.52
11.2	4,125	2-38	do	1-20	do	1	10	112	58	90	34 15	27 58	6 17	81.7	18.3	2.63	3.22	3.62

11.0	4,125	2-38	.....do..........	1-29	.....do.........	1	8	120	58	134	56 00	38 52	17 08	69.4	30.6	2.39	3.45	3.52
11.0	4,125	2-38	.....do..........	1-29	.....do.........	1	12	126	60	86½	34 15	24 43	9 32	72.2	27.8	2.53	3.50	3.83
10.9	4,140	2-40	.....do..........	1-29	.....do.........	1	10	124	60	68½	34 15	19 53	14 22	58.1	41.9	2.00	3.44	3.73
11.0	4,125	2-38	.....do..........	1-29	.....do.........	1	12	124	60	74¾	31 15	21 42	9 33	69.4	30.6	2.30	3.44	3.83
11.2	4,125	2-38	.....do..........	1-29	.....do.........	1	10	120	60	39	21 45	11 42	10 03	53.8	46.2	1.79	3.33	3.73
11.1	4,125	2-38	.....do..........	1-29	.....do.........	1	10	120	60	59¾	34 15	17 56	16 19	52.4	47.6	1.74	3.33	3.73
10.8	4,125	2-38	.....do..........	1-29	.....do.........	1	14	120	60	34½	16 15	10 21	5 54	63.7	36.3	2.11	3.33	3.92
11.0	4,125	2-38	.....do..........	1-29	.....do.........	1	8	120	60	74	34 15	22 12	12 03	64.8	35.2	2.16	3.33	3.63
11.4	4,125	2-38	.....do..........	1-29	.....do.........	1	8	120	60	79½	34 15	23 51	10 24	69.6	30.4	2.32	3.33	3.63
11.3	4,125	2-38	.....do..........	1-29	.....do.........	1	12	120	60	56¼	24 15	16 53	7 22	69.6	30.4	2.32	3.33	3.83
11.0	4,125	2-38	.....do..........	1-29	.....do.........	2	8	115	62	68½	31 15	22 10	9 05	70.9	29.1	2.19	3.10	4.0
11 4	4,906	2-52	.....do..........	2-52	.....do.........	1	16	126	66	66	33 15	20 44	12 31	62.4	37.6	1.98	3.18	4.38
11.0	4,906	2-52	.....do..........	2-52	.....do.........	1	14	123	66	38	17 45	12 14	5 31	68.9	31.1	2.14	3.10	4.29
11.4	4,906	2-52	.....do..........	2-52	.....do.........	1	16	118	66	51	29 45	17 07	12 38	57.5	42.5	1.71	2.98	4.83
11.4	4,906	2-52	.....do..........	2-52	.....do.........	1	8	125	66	58½	34 15	18 32	15 43	54.1	45.9	1.71	3.16	3.16
11.2	4,906	2-52	.....do..........	2-52	.....do.........	1	14	120	66	33	23 30	10 53	12 37	46.3	53.7	1.40	3.08	4.29
9.3	4,848	2-52	.....do..........	1-40	.....do.........	1	11	112	72	11¾	14 45	4 32	10 13	30.7	69.3	.80	2.59	4.51
9.3	4,848	2-52	.....do..........	1-40	.....do.........	1	12	120	72	27½	13 15	9 54	3 21	74.7	25.3	2.08	2.78	4.56
11.2	4,906	2-52	.....do..........	2-52	.....do.........	1	8	128	66	55	23 30	17 01	6 29	72.4	27.6	2.34	3.23	3.52
11.2	4,906	2-52	.....do..........	2-52	.....do.........	1	11	126	66	52	24 15	16 20	7 55	67.4	32.6	2.14	3.18	4.1
9.3	4,848	2-52	.....do..........	1-40	.....do.........	1	12	126	72	53½	32 30	18 16	14 14	56.2	43.8	1.64	2.92	4.56
7.0	2,352	2-38	.....do..........	1-24	.....do.........	1	4	135	40	109¾	34 15	19 31	14 44	57.0	43.0	3.20	5.63	2.14
7.0	3,444	2-38	.....do..........	1-24	.....do.........	1	2	128	40	127½	34 15	23 52	10 23	69.7	30.3	3.72	5.33	2.14
10.6	3,128	2-30	.....do..........	1-24	.....do.........	1	9	122	47	104½	28 00	24 10	3 50	86.3	13.7	3.73	4.33	2.9
10.6	3,128	2-30	.....do..........	1-24	.....do.........	1	8	125	47	112¾	34 15	25 26	8 49	74.3	25.7	3.29	4.43	2.6
10.4	3,128	2-30	.....do..........	1-24	.....do.........	1	8	132	47	85½	30 00	18 19	11 41	61.1	38.9	2.86	4.09	2.6
10.4	3,128	2-30	.....do..........	1-24	.....do.........	1	8	120	47	70½	22 15	16 34	5 41	74.5	25.5	3.17	4.26	2.86
10.2	3,128	2-30	.....do..........	1-24	.....do.........	1	12	120	47	131	56 00	30 47	25 13	55.0	45.0	2.34	4.26	2.86
10.0	3,128	2-30	.....do..........	1-24	.....do.........	1	8	120	47	67¾	34 15	15 55	18 20	46.5	53.5	1.98	4.26	2.86
10.0	3,444	2-38	.....do..........	1-24	.....do.........	1	4	134	52	86½	34 15	20 05	14 10	58.6	41.4	2.52	4.30	2.78
11.2	3,466	2-30	.....do..........	1-26	.....do.........	1	12	126	54	90	34 15	23 08	11 07	67.6	32.4	2.63	3.89	3.46
11.6	3,466	2-30	.....do..........	1-26	.....do.........	1	12	126	54	100½	34 15	25 47	8 28	75.3	24.7	2.93	3.89	3.46
11.4	3,466	2-30	.....do..........	1-26	.....do.........	1	12	126	54	66	27 30	16 58	10 32	61.7	38.3	2.40	3.89	3.46
11.4	3,556	2-30	.....do..........	1-26	.....do.........	1	14	122	54	33	17 30	8 46	8 44	50.1	49.9	1.89	3.77	3.56
11.8	3,556	2-30	.....do..........	1-26	.....do.........	1	12	124	54	61	23 30	15 56	7 34	67.8	32.2	2.60	3.83	3.46
11.2	3,466	2-30	.....do..........	1-26	.....do.........	1	12	123	54	59¾	34 15	15 44	18 31	45.9	54.1	1.74	3.80	3.46
11.2	3,556	2-30	.....do..........	1-26	.....do.........	2	15	124	54	53	21 00	13 51	7 09	66.0	34.0	2.52	3.83	3.6
12.2	3,466	2-30	.....do..........	1-26	.....do.........	1	12	122	54	76¾	34 15	20 23	13 52	59.5	40.5	2.24	3.77	3.46
11.4	3,466	2-30	.....do..........	1-26	.....do.........	1	12	120	54	66½	27 30	17 58	9 32	65.3	34.7	2.42	3.70	3.46
11.2	3,556	2-30	.....do..........	1-26	.....do.........	2	12	120	54	96½	34 15	26 04	8 11	76.1	23.9	2.82	3.70	2.46
11.4	3,466	2-30	.....do..........	1-26	.....do.........	1	8	120	54	86	34 00	23 13	10 47	68.3	31.7	2.53	3.70	3.27
11.2	3,466	2-30	.....do..........	1-26	.....do.........	1	12	120	54	100½	63 15	27 08	36 07	42.9	57.1	2.16	3.70	3.46
11.6	3,556	2-30	.....do..........	1-26	.....do.........	1	8	120	54	58½	34 15	15 48	18 27	46.1	53.9	1.71	3.70	3.56
11.6	3,466	2-30	.....do..........	1-26	.....do.........	1	12	120	54	72½	34 15	19 31	14 44	57.0	43.0	2.11	3.70	3.46
11.1	3,466	2-30	.....do..........	1-26	.....do.........	1	12	120	54	65	32 15	17 33	14 42	54.4	45.6	2.02	3.70	3.46
11.1	3,466	2-30	.....do..........	1-26	.....do.........	1	8	120	54	95	34 15	25 39	8 36	74.9	25.1	2.77	3.70	3.27
11.4	3,466	2-36	.....do..........	1-21	.....do.........	1	8	124	56	106½	34 15	28 51	5 24	84.2	15.8	3.11	3.70	3.4
11.8	3,466	2-36	.....do..........	1-21	.....do.........	1	8	124	56	95	34 15	25 44	8 31	75.2	24.8	2.77	3.70	3.4
9.6	3,370	2-40	.....do..........	1-29	.....do.........	1	6	116	56	66½	31 15	19 11	12 04	61.4	38.6	2.12	3.45	3.27
11.3	3,466	2-36	.....do..........	1-21	.....do.........	1	12	122	56	73½	32 15	20 14	12 01	62.7	37.3	2.28	3.63	3.33
11.2	3,466	2-36	.....do..........	1-21	.....do.........	2	8	116	56	56½	29 00	16 22	12 38	56.4	43.6	1.95	3.45	3.63
11.2	3,466	2-36	.....do..........	1-21	.....do.........	1	12	116	56	92	34 15	26 39	7 36	77.8	22.2	2.69	3.45	3.33
10.8	3.466	2-30	.....do..........	1-26	.....do.........	1	12	120	56	34½	15 00	9 40	5 20	64.4	35.6	2.30	3.57	3.59

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

FANCY WORSTED—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
9.6	3,370	2-40	Worsted	1-20	Worsted	1	6	120	56	84	34 15	23 31	10 44	68.7	31.3	2.45	3.57	3.27
11.6	3,466	2-30	....do	1-26	....do	1	12	120	56	88½	34 15	24 43	9 32	72.1	27.9	2.58	3.57	3.50
10.4	3,556	2-30	....do	1-26	....do	2	11	120	46	95¼	34 15	22 52	11 23	66.8	33.2	2.78	4.17	3.41
12.0	3,556	2-30	....do	1-26	....do	1	8	126	52	89¾	30 15	22 13	8 02	73.4	26.6	2.97	4.04	3.16
12.2	3,556	2-30	....do	1-26	....do	2	8	124	52	85¾	34 15	21 31	12 44	62.8	37.2	2.50	3.98	3.16
11.8	3,556	2-30	....do	1-26	....do	2	8	120	58	72¼	34 15	18 47	15 28	54.9	45.1	2.11	3.85	3.16
11.6	3,556	2-30	....do	1-26	....do	1	14	126	54	42	25 00	10 48	14 12	43.2	56.8	1.68	3.89	4.19
11.6	4,125	2-38	....do	1-29	....do	2	8	126	60	60	33 30	17 08	16 22	51.1	48.9	1.79	3.50	3.63
11.2	4,125	2-38	....do	1-29	....do	2	11	120	60	70½	32 15	21 09	11 06	65.6	34.4	2.19	3.33	3.78
11.2	4,125	2-38	....do	1-29	....do	2	12	120	60	80½	34 15	24 14	10 01	70.7	29.3	2.36	3.33	3.88
10.9	4,125	2-38	....do	1-29	....do	2	12	120	60	64½	26 45	19 26	7 19	72.6	27.4	2.42	3.33	3.88
10.8	4,125	2-38	....do	1-29	....do	2	9	120	60	21½	14 15	6 27	7 48	45.3	54.7	1.50	3.33	3.68
11.2	4,125	2-38	....do	1-27	....do	2	8	120	60	46½	32 45	13 57	18 48	42.6	57.4	1.43	3.33	3.68
11.6	3,556	2-30	....do	1-26	....do	1	12	118	54	75½	34 15	20 44	13 31	60.5	39.5	2.20	3.64	3.46
11.4	3,556	2-30	....do	1-26	....do	1	14	126	54	66	34 15	16 58	17 17	49.5	50.5	1.93	3.89	3.56
11.2	3,556	2-30	....do	1-26	....do	2	12	116	54	67¾	29 00	18 55	10 05	65.2	34.8	2.34	3.58	3.46
11.4	3,556	2-30	....do	1-26	....do	2	12	112	54	84	29 15	24 18	4 57	83.1	16.9	4.87	3.46	3.46
11.2	3,556	2-30	....do	1-26	....do	2	11	112	54	89½	34 15	25 53	8 22	75.6	24.4	2.61	3.46	3.41
11.2	3,556	2-30	....do	1-26	....do	2	11	120	54	88	34 15	23 46	10 29	69.4	30.6	2.57	3.70	3.41
10.9	3,528	2-30	....do	1-26	....do	1	14	120	55	68½	26 45	18 50	7 55	70.4	29.6	2.56	3.64	3.62
11.4	3,466	2-36	....do	1-21	....do	1	8	124	56	18	8 45	4 53	3 52	55.7	44.3	2.86	4.40	3.4
12.0	3,466	2-36	....do	1-26	....do	2	8	112	56	92½	34 15	27 45	6 30	81.0	19.0	2.70	3.33	3.33
11.2	3,466	2-36	....do	1-21	....do	2	8	120	56	85	34 15	23 48	10 27	69.5	30.5	2.48	3.57	3.38
11.2	3,466	2-36	....do	1-21	....do	2	8	120	56	63	34 15	17 38	16 37	51.5	48.5	1.84	3.57	3.33

MISCELLANEOUS WORSTED FABRICS.

MALE WEAVERS.

4.3	2,900	1/50	Cotton	1/26	Worsted	1	4	165	68	127.0	42 00	31 24	10 36	74.8	25.2	3.02	4.04	2.2
4.2	2,900	1/50	do	1/26	do	1	4	165	68	88.0	42 00	21 46	20 14	51.8	48.2	2.10	4.04	2.2
4.5	3,400	1/50	do	1/24	do	1	5	165	70	88.0	31 30	21 28	10 02	68.1	31.9	2.79	3.93	2.3
4.8	2,700	1/35	do	1/30	do	1	12	165	78	114.0	42 00	32 20	9 40	77.0	23.0	2.71	3.53	2.5
4.8	2,700	1/35	do	1/30	do	1	12	165	78	127.0	42 00	36 01	5 59	85.8	14.2	3.02	3.53	2.5
4.5	2,700	1/35	do	1/30	do	1	12	165	78	110.0	42 00	31 12	10 48	74.3	25.7	2.62	3.52	2.5
4.7	2,700	1/35	do	1/30	do	1	12	165	78	105.0	42 00	29 47	12 13	68.9	31.1	2.50	3.53	2.5
4.7	2,700	1/35	do	1/30	do	1	12	165	78	95.0	42 00	26 57	15 03	64.2	35.8	2.26	3.53	2.5
4.7	2,700	1/35	do	1/30	do	1	12	165	78	101.0	42 00	28 39	13 21	68.2	31.8	2.40	3.53	2.5
4.5	2,900	1/33	do	1/20	do	1	5	165	44	197.0	42 00	31 31	10 29	75.0	25.0	4.69	6.25	1.4
4.3	2,900	1/33	do	1/20	do	1	12	165	44	106.0	42 00	25 59	16 01	61.7	38.3	3.26	6.25	1.4
3.9	3,000	1/40	do	1/24	do	1	5	165	46	128.0	36 30	21 25	15 05	58.7	41.3	3.51	5.98	1.5
4.4	2,500	1/33	do	1/20	do	1	5	165	46	160.0	42 00	26 46	15 14	63.7	36.3	3.81	5.98	1.5
4.4	2,900	1/33	do	1/20	do	1	5	165	46	171.0	42 00	28 36	13 24	68.1	31.9	4.07	5.98	1.5
4.5	2,900	1/33	do	1/20	do	1	5	165	46	162.0	42 00	27 06	14 54	64.5	35.5	3.86	5.98	1.5
4.1	3,000	1/40	do	1/24	do	1	5	165	46	121.0	36 30	20 40	15 50	56.6	43.4	3.32	5.97	1.5
3.4	4,900	1/33	do	1/20	do	1	5	140	50	132.0	42 00	28 17	13 43	67.3	32.7	3.14	4.67	3.0
3.2	2,900	1/33	do	1/20	do	1	5	165	50	132.0	42 00	24 00	18 00	57.1	42.9	3.14	5.50	1.6
3.3	2,448	1/45	do	1/26	do	1	5	165	50	157.0	42 00	28 33	13 27	72.0	28.0	3.74	5.50	1.6
3.5	2,448	1/45	do	1/26	do	1	5	165	50	144.0	42 00	26 11	15 49	62.3	37.7	3.43	5.50	1.6
3.5	2,448	1/45	do	1/26	do	1	11	165	50	153.0	42 00	27 49	14 11	62.2	37.8	3.64	5.50	1.6
3.3	2,448	1/45	do	1/26	do	1	5	165	50	157.0	42 00	28 33	13 27	68.0	32.0	3.74	5.50	1.6
4.0	2,800	1/40	do	1/22	do	1	4	165	50	177.0	42 00	32 11	9 49	76.6	23.4	4.21	5.50	1.6
3.6	2,448	1/45	do	1/26	do	1	5	165	50	166.0	42 00	30 11	11 49	71.9	28.1	3.95	5.50	1.6
3.7	2,448	1/45	do	1/26	do	1	5	165	50	164.0	42 00	29 49	12 11	71.0	29.0	3.90	5.50	1.6
4.7	2,900	1/33	do	1/20	do	1	5	165	50	182.0	42 00	38 05	8 55	78.8	21.2	4.33	5.50	1.6
3.6	2,448	1/45	do	1/26	do	1	5	165	50	152.0	42 00	27 38	14 22	65.8	34.2	3.62	5.50	1.6
3.4	2,448	1/45	do	1/26	do	1	11	165	50	128.0	42 00	23 43	18 17	56.5	43.5	3.05	5.50	1.6
4.6	3,200	1/33	do	1/22	do	1	8	165	54	158.0	42 00	31 02	10 58	73.9	26.1	3.76	5.09	1.7
4.8	3,200	1/33	do	1/22	do	1	8	165	54	131.0	42 00	31 07	10 53	74.1	25.9	3.12	5.09	1.7
3.7	2,448	1/50	do	1/32	do	1	12	165	54	86.0	42 00	30 00	12 00	71.4	28.6	2.05	4.04	2.2
4.9	3,200	1/33	do	1/22	do	1	8	165	54	131.0	42 00	25 43	16 17	61.2	38.8	3.12	5.09	1.7
4.4	3,200	1/33	do	1/22	do	1	8	165	54	152.0	42 00	29 51	12 09	71.1	28.9	3.62	5.07	1.7
4.5	3,200	1/33	do	1/22	do	1	8	165	54	134.0	42 00	26 19	15 41	62.7	37.3	3.19	5.09	1.7
3.3	2,100	1/50	do	1/26	do	1	4	165	56	107.0	36 30	21 47	14 43	59.7	40.3	2.93	4.91	1.8
3.4	2,100	1/50	do	1/26	do	1	4	165	56	130.0	42 00	26 43	15 17	63.6	36.4	3.10	4.91	1.8
3.6	2,100	1/50	do	1/26	do	1	4	165	56	166.0	42 00	33 48	8 12	80.5	19.5	3.95	4.91	1.8
3.5	2,100	1/50	do	1/26	do	1	4	165	58	135.0	42 00	28 28	13 32	67.8	32.2	3.21	4.74	1.9
3.4	2,100	1/50	do	1/26	do	1	4	165	58	107.0	36 30	22 24	13 56	61.8	38.2	2.93	4.74	1.9
3.6	2,100	1/50	do	1/26	do	1	4	165	58	120.0	42 00	25 19	16 41	60.3	39.7	2.86	4.74	1.9
3.5	2,700	1/50	do	1/26	do	1	4	165	58	107.0	42 00	22 34	19 26	53.7	46.3	2.55	4.74	1.9
3.5	2,100	1/50	do	1/26	do	1	4	165	58	128.0	42 00	27 00	15 00	64.3	35.7	3.05	4.74	1.9
3.4	5,400	1/33	do	1/22	do	1	5	140	60	114.0	42 00	29 19	12 41	69.8	30.2	2.71	3.80	3.5
3.9	2,900	1/50	do	1/26	do	1	4	165	60	120.0	42 00	23 34	18 26	56.1	43.9	2.86	4.58	1.9
3.8	2,900	1/50	do	1/26	do	1	4	165	60	143.0	42 00	31 12	10 48	74.3	25.7	3.40	4.58	1.9
4.0	2,900	1/50	do	1/26	do	1	4	165	60	137.0	42 00	26 54	15 06	64.0	36.0	3.26	5.09	1.9
3.8	2,100	1/50	do	1/26	do	1	4	165	60	111.0	42 00	24 13	17 47	57.7	42.3	2.64	4.58	1.9

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

MISCELLANEOUS WORSTED FABRICS—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—Loom was producing.	Actual time—Lost in stoppages.	Per cent of total time—Loom was producing.	Per cent of total time—Lost in stoppages.	Yards woven per hour—Of total time.	Yards woven per hour—Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
5.2	3,200	1/36	Cotton	1/22	Worsted	1	5	165	66	112.0	42 00	26 53	15 07	64.0	36.0	2.67	4.17	2.2
8.9	5,600	1/34	Worsted	1/26	do	1	5	140	60	100.0	42 00	25 43	16 17	61.2	38.8	2.38	3.89	3.9
3.9	2,448	1/50	do	1/28	do	1	4	165	64	129.0	42 00	27 06	14 54	64.5	35.5	3.08	4.30	2.1
8.3	5,600	1/34	do	1/30	do	1	5	140	70	96.0	42 00	28 48	13 12	68.6	31.4	2.29	3.33	4.2
8.3	4,600	1/35	do	1/28	do	1	4	140	76	83.0	42 00	27 02	14 58	64.4	35.6	1.98	3.07	4.5
8.3	4,600	1/35	do	1/28	do	1	4	140	76	92.0	42 00	29 58	12 02	71.3	28.7	2.19	3.07	4.5
8.2	4,600	1/35	do	1/28	do	1	4	140	76	97.0	39 00	31 35	7 25	81.0	19.0	2.49	3.07	4.5
8.3	4,600	1/35	do	1/28	do	1	4	140	76	101.0	42 00	28 20	13 40	67.4	32.6	2.40	3.07	4.5
4.3	2,900	1/33	do	1/20	do	1	12	165	80	137.0	42 00	25 59	16 01	61.7	38.3	3.26	6.26	1.4
8.3	4,600	1/35	do	1/32	do	1	4	140	88	85.0	42 00	32 04	9 56	76.3	23.7	2.02	2.65	5.2
3.4	2,448	1/50	Cotton	1/26	do	1	12	165	52	150.0	42 00	28 22	13 38	67.5	32.5	3.57	5.29	1.6
3.5	2,448	1/50	do	1/26	do	1	12	165	52	112.0	42 00	21 11	20 49	50.4	49.6	2.67	5.29	1.6
3.5	2,448	1/50	do	1/26	do	1	12	165	52	136.0	42 00	25 43	16 17	61.2	38.8	3.24	5.29	1.6
3.4	2,448	1/50	do	1/26	do	1	12	165	52	114.0	42 00	21 52	20 08	52.1	47.9	2.71	5.09	1.6
3.4	2,448	1/50	do	1/26	do	1	12	165	54	119.0	42 00	23 22	18 38	57.7	42.3	2.83	5.09	1.7
3.3	2,448	1/50	do	1/26	do	1	12	165	54	130.0	42 00	25 54	16 06	61.7	38.3	3.10	4.91	1.8
4.3	2,300	1/35	do	1/26	do	1	5	165	56	82.0	42 00	19 27	22 33	43.9	56.1	1.95	4.91	1.8
3.9	2,300	1/35	do	1/26	do	1	5	165	56	138.0	40 00	28 06	11 54	70.3	29.7	3.45	4.91	1.8
4.0	2,300	1/35	do	1/26	do	1	5	165	56	150.0	40 00	30 33	9 27	76.4	23.6	3.75	4.91	1.8
4.8	2,300	1/35	do	1/26	do	1	5	165	56	133.0	42 00	27 05	14 55	64.5	35.5	3.17	4.91	1.8
4.4	2,448	1/36	do	1/26	do	1	12	165	60	106.0	40 00	23 08	16 52	57.8	42.2	2.65	4.58	1.9
4.2	2,448	1/36	do	1/26	do	1	12	165	60	135.0	40 00	29 27	10 33	73.6	26.4	3.38	4.58	1.9
4.0	2,284	1/45	do	1/28	do	1	2	147	59	104.5	37 20	26 10	12 10	67.4	32.6	2.80	4.15	1.52
5.4	3,192	1/45	do	1/28	do	1	2	128	59	129.0	45 40	35 41	9 59	78.1	21.9	2.82	3.62	1.83
4.1	2,492	1/45	do	1/28	do	1	2	147	62	160.2	43 50	40 32	3 18	92.5	7.5	3.65	3.95	1.6
4.1	2,492	1/45	do	1/28	do	1	2	147	62	129.9	53 20	32 52	20 28	61.6	38.4	2.44	3.95	1.57

4.5	3,426	1/45	do	1/28	do	1	2	147	64	133.9	41 11	34 59	6 12	84.9	15.1	3.25	3.83	1.31
4.5	3,426	1/45	do	1/28	do	1	2	147	64	169.1	55 52	44 10	11 42	79.1	20.9	3.03	3.83	1.3
4.2	2,876	1/45	do	1/28	do	1	2	147	64	168.2	47 30	43 56	3 34	92.5	7.5	3.54	3.83	1.55
4.5	3,426	1/45	do	1/28	do	1	2	147	64	147.6	49 28	38 34	10 54	78.0	22.0	2.98	3.83	1.41
4.1	2,816	1/45	do	1/28	do	1	18	147	64	99.2	42 22	25 55	16 27	61.2	38.8	2.34	3.83	1.57
4.0	2,268	1/45	do	1/28	do	1	10	147	64	104.0	33 19	27 10	6 09	81.5	18.5	3.12	3.83	1.56
4.5	3,426	1/45	do	1/28	do	1	2	147	64	98.3	43 43	25 41	18 02	58.7	41.3	2.25	3.83	1.59
4.0	2,268	1/45	do	1/28	do	1	10	147	64	99.5	39 35	26 00	13 35	65.7	34.3	2.51	3.83	1.63
4.0	2,268	1/45	do	1/28	do	1	10	147	64	126.4	45 46	33 01	12 45	72.1	27.9	2.76	3.83	1.58
4.5	3,426	1/45	do	1/28	do	1	2	147	64	133.3	43 04	34 49	8 15	80.9	19.1	3.10	3.83	1.32
4.2	2,876	1/45	do	1/28	do	1	2	147	64	134.3	53 07	35 05	18 02	66.0	34.0	2.53	3.83	1.31
4.5	3,426	1/45	do	1/28	do	1	2	147	64	166.9	51 13	43 36	7 37	85.1	14.9	3.26	3.83	1.32
4.5	3,426	1/45	do	1/28	do	1	2	147	64	133.9	41 57	34 59	6 58	83.4	16.6	3.19	3.83	1.3
4.5	3,426	1/45	do	1/28	do	1	2	147	64	133.5	42 49	34 52	7 57	81.4	18.6	3.12	3.83	1.32
4.5	3,426	1/45	do	1/28	do	1	2	147	64	101.2	36 44	26 26	10 18	72.0	28.0	2.76	3.83	1.3
4.0	2,126	1/45	do	1/28	do	1	2	147	64	66.1	21 38	17 16	4 22	79.8	20.2	3.06	3.83	1.45
4.2	2,876	1/45	do	1/28	do	1	2	147	64	166.4	50 26	43 28	6 58	86.2	13.8	3.30	3.83	1.56
4.1	2,816	1/45	do	1/28	do	1	18	147	64	66.8	25 02	17 27	7 35	69.7	30.3	2.67	3.83	1.56
4.0	2,268	1/45	do	1/28	do	1	10	147	64	133.3	44 09	34 49	9 20	78.9	21.1	3.02	3.83	1.16
4.1	2,400	1/45	do	1/28	do	1	8	128	66	101.9	37 31	31 32	5 59	84.0	16.0	2.72	3.23	1.59
4.2	2,272	1/45	do	1/28	do	1	12	147	68	100.9	41 20	28 01	13 19	67.8	32.2	2.44	3.60	1.75
4.1	2,426	1/45	do	1/28	do	1	2	147	64	160.6	50 49	41 57	8 52	82.6	17.4	3.16	3.83	1.4
4.1	2,426	1/45	do	1/28	do	1	2	147	64	99.2	41 50	25 55	15 55	62.0	38.0	2.37	3.83	1.54
3.6	2,100	1/45	do	1/28	do	1	2	147	64	57.8	16 33	15 06	1 27	91.2	8.8	3.49	3.83	1.49
4.1	2,426	1/45	do	1/28	do	1	2	147	64	128.2	46 55	33 29	13 26	71.4	28.6	2.73	3.83	1.4
4.1	2,426	1/45	do	1/28	do	1	2	147	64	97.2	32 03	25 23	6 40	79.2	20.8	3.03	3.83	1.39
4.1	2,426	1/45	do	1/28	do	1	2	147	64	162.3	47 05	42 24	4 41	90.0	10.0	3.45	3.82	1.39
3.6	2,100	1/45	do	1/28	do	1	2	128	64	57.8	27 51	17 20	10 31	62.2	37.8	2.08	3.33	.97
3.6	2,100	1/45	do	1/28	do	1	2	122	64	113.9	42 52	35 51	7 01	83.6	16.4	2.66	3.18	.99
3.6	2,100	1/45	do	1/28	do	1	2	122	64	58.0	20 51	18 15	2 36	87.5	12.5	2.78	3.18	1.07
3.6	2,100	1/45	do	1/28	do	1	2	122	64	115.8	42 55	36 27	6 28	84.9	15.1	2.70	3.18	1.07
3.6	2,100	1/45	do	1/28	do	1	2	122	64	90.0	36 36	28 20	8 16	77.4	22.6	2.46	3.18	1.0
3.6	2,100	1/45	do	1/28	do	1	2	122	64	112.4	47 55	35 23	12 32	73.9	26.1	2.35	3.18	1.0
3.7	2,174	1/45	do	1/28	do	1	2	147	66	169.6	47 46	45 41	2 05	95.6	4.4	3.55	3.71	1.52
3.7	2,174	1/45	do	1/28	do	1	2	147	66	113.4	41 32	30 33	10 59	73.6	26.4	2.73	3.71	1.29
3.7	2,174	1/45	do	1/28	do	1	2	147	66	112.3	37 06	30 15	6 51	81.5	18.5	3.03	3.71	1.53
3.9	2,194	1/45	do	1/28	do	1	2	128	68	55.1	23 52	17 34	6 18	73.6	26.4	2.31	3.14	1.60
3.9	2,194	1/45	do	1/28	do	1	2	128	68	56.0	25 03	17 51	7 12	71.3	28.7	2.24	3.14	1.57
3.9	2,194	1/45	do	1/28	do	1	2	128	68	128.1	46 16	40 50	5 26	88.3	11.7	2.77	3.14	1.59
3.9	2,194	1/45	do	1/28	do	1	2	128	68	62.9	24 53	20 03	4 50	80.6	19.4	2.53	3.14	1.62
3.9	2,194	1/45	do	1/28	do	1	2	128	68	50.4	24 51	16 04	8 47	64.7	35.3	2.03	3.14	1.75
3.9	2,194	1/45	do	1/28	do	1	2	147	68	186.6	56 17	51 47	4 30	92.0	8.0	3.32	3.60	1.2
3.9	2,194	1/45	do	1/28	do	1	2	147	68	62.9	23 08	17 27	5 41	75.5	24.5	2.72	3.60	1.62
3.9	2,194	1/45	do	1/28	do	1	2	147	68	62.4	23 19	17 19	6 00	74.3	25.7	2.68	3.60	1.38
3.9	2,194	1/45	do	1/28	do	1	2	147	68	108.9	42 53	30 14	12 39	70.5	29.5	2.54	3.60	1.38
3.9	2,194	1/45	do	1/28	do	1	2	147	68	185.6	60 10	51 31	8 39	85.6	14.4	3.08	3.60	1.39
3.9	2,194	1/45	do	1/28	do	1	2	147	68	107.3	40 45	29 47	10 58	73.1	26.9	2.63	3.60	1.4
3.9	2,194	1/45	do	1/28	do	1	2	147	68	124.2	43 15	34 28	8 47	79.7	20.3	2.89	3.60	1.38
3.7	2,194	1/45	do	1/28	do	1	2	128	68	57.6	20 00	18 22	1 38	91.8	8.2	2.88	3.14	1.04
3.7	2,194	1/45	do	1/28	do	1	2	128	68	116.4	43 50	37 06	6 44	84.6	15.4	2.66	3.14	1.03
4.0	2,194	1/45	do	1/28	do	1	2	147	72	51.9	24 01	15 15	8 46	63.5	36.5	2.16	3.40	1.56
4.0	2,194	1/45	do	1/28	do	1	2	147	72	87.3	28 27	25 39	2 48	90.2	9.8	3.07	3.40	1.29

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

MISCELLANEOUS WORSTED FABRICS—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
4.0	2,194	1/45	Cotton	1/28	Worsted	1	2	147	72	53.4	20 50	15 42	5 17	74.8	25.2	2.54	3.40	1.52
4.0	2,194	1/45	do	1/28	do	1	2	147	72	51.4	22 55	15 06	7 49	65.9	34.1	2.24	3.40	1.58
4.0	2,194	1/45	do	1/28	do	1	2	147	72	48.9	27 46	14 22	13 24	51.7	48.3	1.76	3.40	1.66
4.0	2,194	1/45	do	1/28	do	1	2	147	72	55.9	29 22	16 26	12 56	56.0	44.0	1.90	3.40	1.45
4.0	2,194	1/45	do	1/28	do	1	2	147	72	50.9	20 35	14 57	5 38	72.7	27.3	2.47	3.40	1.50
3.5	2,450	1/50	do	1/28	do	1	2	122	53	135.9	51 50	35 26	16 34	68.1	31.9	2.61	3.84	.96
3.5	2,450	1/50	do	1/28	do	1	2	122	53	135.1	48 45	35 13	13 32	72.2	27.8	2.77	3.84	.96
3.5	2,450	1/50	do	1/28	do	1	2	122	53	135.1	47 35	35 13	12 22	74.0	26.0	2.84	3.84	.98
4.5	2,796	1/45	do	1/28	do	1	2	128	53	47.4	17 35	11 47	5 48	67.0	33.0	2.70	4.03	1.12
3.5	2,450	1/50	do	1/28	do	1	1	122	53	45.4	30 07	11 50	18 17	39.3	60.7	1.51	3.84	.95
3.5	2,450	1/50	do	1/28	do	1	1	122	53	89.1	45 58	23 13	22 45	50.5	49.5	1.94	3.84	.97
3.3	2,164	1/45	do	1/28	do	1	2	147	55	123.6	33 05	27 45	5 20	83.9	16.1	3.74	4.45	1.00
3.3	2,164	1/45	do	1/28	do	1	2	147	55	126.0	29 21	28 17	1 04	63.7	36.3	4.29	4.45	1.33
3.3	2,164	1/45	do	1/28	do	1	2	147	55	127.8	41 29	28 41	12 48	69.1	30.9	3.08	4.45	1.31
3.3	2,164	1/45	do	1/28	do	1	2	147	55	63.6	15 50	14 17	1 33	90.2	9.8	4.02	4.45	1.32
3.4	2,164	1/45	do	1/28	do	1	2	147	57	112.4	30 18	26 09	4 09	86.3	13.7	3.71	4.30	1.16
3.5	2,164	1/45	do	1/28	do	1	2	147	57	186.5	55 18	43 23	11 55	78.5	21.5	3.37	4.30	1.38
3.4	2,164	1/45	do	1/28	do	1	2	147	57	167.5	56 13	38 58	17 15	69.3	30.7	2.98	4.30	1.38
3.5	2,164	1/45	do	1/28	do	1	2	147	57	125.1	41 40	29 07	12 33	65.2	34.8	2.80	4.30	1.1
3.4	2,164	1/45	do	1/28	do	1	2	147	57	199.6	54 38	46 26	8 12	85.0	15.0	3.65	4.30	1.32
3.4	2,164	1/45	do	1/28	do	1	2	147	57	130.7	38 39	30 25	8 14	78.7	21.3	3.38	4.30	1.35
3.4	2,164	1/45	do	1/28	do	1	2	147	57	60.0	16 25	13 58	2 27	85.1	14.9	3.65	4.30	1.28
3.4	2,164	1/45	do	1/28	do	1	2	147	57	64.4	26 55	14 59	11 56	55.7	44.3	2.39	4.30	1.37
3.4	2,164	1/45	do	1/28	do	1	2	128	57	56.1	17 20	14 59	2 21	86.4	13.6	2.64	3.75	.89
4.6	2,686	1/45	do	1/28	do	1	2	128	59	130.1	44 17	35 59	8 18	81.3	18.7	2.49	3.62	1.72
4.6	2,686	1/45	do	1/28	do	1	2	128	59	128.7	42 57	35 36	7 21	82.9	17.1	3.00	3.62	1.74

4.6	2,686	1/45	do	1/28	do	1	2	128	59	95.3	41 36	26 22	15 14	63.4	36.6	2.29	3.62	1.22
4.5	2,686	1/45	do	1/28	do	1	2	128	59	128.9	42 57	35 39	7 18	83.0	17.0	3.00	3.62	1.74
4.5	2,686	1/45	do	1/28	do	1	2	128	59	131.3	44 53	36 19	8 34	80.9	19.1	2.93	3.62	1.71
3.5	2,100	1/45	do	1/28	do	1	2	147	59	108.2	34 44	26 04	8 40	75.0	25.0	3.12	4.15	1.48
3.6	2,164	1/45	do	1/28	do	1	2	147	59	109.3	34 30	26 19	8 11	76.3	23.7	3.17	4.15	1.46
3.5	2,100	1/45	do	1/28	do	1	2	147	59	164.1	48 57	39 31	9 26	80.7	19.3	3.35	4.15	1.46
3.5	2,100	1/45	do	1/28	do	1	2	147	59	109.1	33 30	26 16	7 14	78.4	21.6	3.26	4.15	1.23
3.5	2,100	1/45	do	1/28	do	1	2	147	59	164.1	47 49	39 31	8 18	82.6	17.4	3.43	4.15	1.22
3.6	2,164	1/45	do	1/28	do	1	2	147	59	107.0	31 49	25 46	6 03	81.0	19.0	3.36	4.15	1.5
3.5	2,100	1/45	do	1/28	do	1	2	147	59	166.9	49 25	40 11	9 14	81.3	18.7	3.38	4.15	1.2
3.5	2,100	1/45	do	1/28	do	1	2	147	59	107.4	33 06	25 52	7 14	78.1	21.9	3.24	4.15	1.49
3.5	2,100	1/45	do	1/28	do	1	2	128	59	108.8	38 34	30 06	8 28	78.0	22.0	2.82	3.62	.97
3.5	2,100	1/45	do	1/28	do	1	2	128	59	112.5	50 03	31 06	18 57	62.1	37.9	2.25	3.62	.92
3.5	2,100	1/45	do	1/28	do	1	2	128	59	164.3	56 10	45 26	10 44	80.9	19.1	2.93	3.62	.95
3.5	2,100	1/45	do	1/28	do	1	2	128	59	166.3	58 50	46 00	12 50	78.2	21.8	2.83	2.62	.94
3.5	2,100	1/45	do	1/28	do	1	2	128	59	111.6	36 44	30 52	5 52	84.0	16.0	3.04	3.62	.93
3.5	2,100	1/45	do	1/28	do	1	2	128	59	111.3	37 24	30 47	6 37	82.3	17.7	2.98	3.62	.93
3.5	2,100	1/45	do	1/28	do	1	2	128	59	55.5	22 03	15 21	6 42	69.6	30.4	2.52	3.62	1.05
3.5	2,100	1/45	do	1/28	do	1	2	128	59	111.1	39 41	30 44	8 57	77.4	22.6	2.80	3.62	1.04
3.5	2,100	1/45	do	1/28	do	1	2	128	59	58.6	19 15	16 13	3 02	84.2	15.8	3.04	3.62	.99
3.5	2,100	1/45	do	1/28	do	1	2	128	59	55.8	27 49	15 26	12 23	55.5	44.5	2.01	3.62	.93
3.5	2,100	1/45	do	1/28	do	1	2	128	59	168.6	56 09	46 38	9 31	83.1	16.9	3.00	3.62	.93
3.5	2.100	1/45	do	1/28	do	1	2	128	59	111.1	47 48	30 44	17 04	64.3	35.7	2.32	3.62	.94
4.5	2,100	1/45	do	1/28	do	1	2	122	59	59.8	23 55	17 21	6 34	72.5	27.5	2.50	3.45	.87
3.5	2.100	1/45	do	1/28	do	1	2	122	59	56.1	18 24	16 17	2 07	88.5	11.5	3.05	3.45	.93
3.5	2,100	1/45	do	1/28	do	1	2	122	59	115.0	40 31	33 22	7 09	82.4	17.6	2.84	3.45	1.01
3.5	2,100	1/45	do	1/28	do	1	2	122	59	112.5	38 11	32 38	5 33	85.5	14.5	2.95	3.45	1.03
3.5	2,100	1/45	do	1/28	do	1	2	122	59	110.5	39 41	32 04	7 37	80.8	19.2	2.78	3.45	1.05
3.5	2,100	1/45	do	1/28	do	1	2	122	59	113.3	41 40	32 53	8 47	78.9	21.1	2.72	3.45	1.02
3.5	2,100	1/45	do	1/28	do	1	2	122	59	109.4	36 27	31 44	4 43	87.1	12.9	3.00	3.45	1.06
3.5	2,100	1/45	do	1/28	do	1	2	122	59	112.2	49 20	32 34	16 46	71.8	28.2	2.48	3.45	.93
3.8	2,100	1/45	do	1/28	do	1	2	122	59	54.4	24 15	15 47	8 28	65.1	34.9	2.24	3.45	.99
3.6	2,100	1/45	do	1/28	do	1	2	122	59	112.2	40 41	32 34	8 07	80.1	19.9	2.76	3.45	.84
3.6	2,100	1/45	do	1/28	do	1	2	122	59	55.8	22 58	16 11	6 47	70.5	29.5	2.43	3.45	1.04
3.6	2,100	1/45	do	1/28	do	1	2	122	59	56.7	24 26	16 27	7 59	67.3	32.7	2.32	3.45	1.02
3.5	2,100	1/45	do	1/28	do	1	2	122	59	111.6	41 13	32 23	8 50	78.6	21.4	2.71	3.45	1.04
3.5	2,100	1/45	do	1/28	do	1	2	122	59	112.8	40 47	32 44	8 03	80.3	19.7	2.77	3.45	1.03
3.5	2,100	1/45	do	1/28	do	1	2	122	59	108.0	39 12	31 20	7 52	79.9	20.1	2.76	3.45	.96
3.5	2,100	1/45	do	1/28	do	1	2	122	59	111.6	53 25	32 23	21 02	60.6	39.4	2.09	3.45	.93
3.5	2,100	1/45	do	1/28	do	1	2	122	59	112.8	52 01	32 44	19 17	62.9	37.1	2.17	3.45	.92
3.5	2,100	1/45	do	1/28	do	1	2	122	59	56.4	21 17	16 22	4 55	76.9	23.1	2.65	3.45	.92
3.5	2,100	1/45	do	1/28	do	1	2	122	59	115.0	46 11	33 22	12 49	72.2	27.8	2.49	3.45	.9
3.5	2,100	1/45	do	1/28	do	1	2	122	59	111.1	41 45	32 14	9 31	77.2	22.8	2.66	3.45	.94
3.5	2,100	1/45	do	1/28	do	1	2	122	59	113.3	39 10	32 53	6 17	84.0	16.0	2.89	3.45	.92
3.5	2,100	1/45	do	1/28	do	1	2	122	59	58.6	20 45	17 00	3 45	81.9	18.1	2.82	3.45	.89
3.6	2,100	1/45	do	1/28	do	1	2	122	59	112.2	40 41	35 27	5 14	87.2	12.8	3.00	3.45	.84
4.2	2,486	1/45	do	1/28	do	1	2	128	62	114.3	40 29	33 13	7 16	82.1	17.9	2.82	3.44	1.42
4.7	2,796	1/45	do	1/28	do	1	2	128	62	145.1	47 00	42 10	4 50	89.7	10.3	3.09	3.44	1.65
3.7	2,174	1/45	do	1/28	do	1	2	147	62	108.9	34 46	27 34	7 12	79.3	20.7	3.13	3.95	1.49
3.7	2,174	1/45	do	1/28	do	1	2	147	62	158.0	49 43	39 59	9 44	80.4	19.6	3.18	3.95	1.27
4.2	2,486	1/45	do	1/28	do	1	2	147	62	142.9	40 51	36 10	4 41	88.5	11.5	3.50	3.95	1.23
4.2	2,486	1/45	do	1/28	do	1	2	147	62	110.7	34 16	28 01	6 15	81.8	18.2	3.23	3.95	1.19

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

MISCELLANEOUS WORSTED FABRICS—Continued.

MALE WEAVERS—Continued.

		Warp.		Filling.				Picks per—			Efficiency of weaver.							
												Actual time—		Per cent of total time—		Yards woven per hour—		
Weight per yard.	Number of ends.	Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.	Number of shuttles.	Number of harness.	Minute.	Inch.	Number of yards woven.	Total time of weaver (hours and minutes).	Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	Piece price per yard.
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
4.2	2,486	1/45	Cotton	1/28	Worsted	1	2	147	62	107.3	37 58	27 09	10 49	71.5	28.5	2.83	2.95	1.23
4.2	2,486	1/45	do	1/28	do	1	2	147	62	107.8	38 53	27 17	11 36	70.2	29.8	2.77	3.95	1.22
3.8	2,174	1/45	do	1/28	do	1	2	128	62	107.3	38 40	31 11	7 29	80.6	19.4	4.47	3.44	1.12
3.8	2,174	1/45	do	1/28	do	1	2	128	62	53.9	24 58	15 40	9 18	62.8	37.2	2.16	3.44	1.0
3.8	2,174	1/45	do	1/28	do	1	2	122	62	53.4	22 43	16 17	6 26	71.7	28.3	2.35	3.28	1.01
3.5	2,174	1/45	do	1/28	do	1	2	122	62	119.0	42 05	36 17	5 48	86.2	13.8	2.83	3.28	.91
3.7	2,174	1/45	do	1/28	do	1	2	122	62	55.8	29 03	17 01	12 02	58.6	41.4	1.92	3.28	.97
3.7	2,174	1/45	do	1/28	do	1	2	122	62	54.2	32 36	16 53	15 43	51.8	48.2	1.66	3.28	1.0
3.7	2,174	1/45	do	1/28	do	1	2	122	62	103.0	46 39	31 25	15 14	67.3	32.7	2.21	3.28	1.05
3.7	2,174	1/45	do	1/28	do	1	2	122	62	111.6	48 20	34 02	14 18	70.4	29.6	2.31	3.28	.97
3.7	2,174	1/45	do	1/28	do	1	2	122	62	53.9	21 44	16 26	5 18	75.6	24.4	2.48	3.28	1.11
3.7	2,174	1/45	do	1/28	do	1	2	122	62	56.0	26 52	17 04	9 48	63.5	36.5	2.08	3.28	.96
3.7	2,174	1/45	do	1/28	do	1	2	122	62	111.6	47 22	34 02	13 20	71.8	28.2	2.36	3.28	.97
4.5	2,796	1/45	do	1/28	do	1	2	128	62	75.9	24 10	22 04	2 06	91.3	8.7	3.14	3.44	1.03
4.5	2,796	1/45	do	1/28	do	1	2	128	62	34.6	14 40	10 04	4 36	68.6	31.4	2.36	3.44	1.18
3.7	2,174	1/45	do	1/28	do	1	2	122	62	103.0	46 39	31 24	15 15	67.3	32.7	2.21	3.28	1.05
3.7	2,174	1/45	do	1/28	do	1	2	122	62	111.6	48 20	34 02	14 18	70.4	29.6	2.31	3.28	.97

FEMALE WEAVERS.

3.6	3,200	1/45	Cotton..........	1/24	Worsted......	1	5	165	46	128.0	36 30	21 25	15 05	58.7	41.3	3.51	5.98	1.5
3.9	3,000	1/40	.....do..........	1/24	.....do..........	1	5	165	46	183.0	42 00	30 37	11 23	72.9	27.1	4.36	5.98	1.5
3.6	3,200	1/45	.....do..........	1/24	.....do..........	1	5	165	46	176.0	42 00	29 26	12 34	70.1	29.9	4.19	5.98	1.5
3.9	3,000	1/40	.....do..........	1/24	.....do..........	1	5	165	46	143.0	42 00	23 55	18 05	57.0	43.0	3.40	5.98	1.5
4.4	2,900	1/33	.....do..........	1/20	.....do..........	1	5	165	46	157.0	42 00	26 16	15 44	62.5	37.5	3.74	5.98	1.5
3.6	3,200	1/45	.....do..........	1/24	.....do..........	1	5	165	46	163.0	42 00	27 16	14 44	64.9	35.1	3.88	5.98	1.5
3.8	3,200	1/45	.....do..........	1/24	.....do..........	1	5	165	46	159.0	42 00	26 36	15 24	63.3	36.7	3.79	5.98	1.5
3.8	3,000	1/40	.....do..........	1/24	.....do..........	1	5	165	46	167.0	42 00	27 56	14 04	66.5	33.5	3.98	5.98	1.5
3.8	3,000	1/40	.....do..........	1/24	.....do..........	1	5	165	46	160.0	42 00	26 46	15 14	63.7	36.3	3.81	5.98	1.5
4.3	2,900	1/33	.....do..........	1/20	.....do..........	1	5	165	46	159.0	42 00	26 35	15 25	63.3	36.7	3.79	5.98	1.5
3.7	3,000	1/40	.....do..........	1/24	.....do..........	1	5	165	46	162.0	42 00	27 05	14 55	64.5	35.5	3.86	5.98	1.5
4.4	2,900	1/33	.....do..........	1/20	.....do..........	1	5	165	46	173.0	42 00	28 56	13 04	68.9	31.1	4.12	5.98	1.5
3.6	3,200	1/45	.....do..........	1/24	.....do..........	1	5	165	46	176.0	42 00	29 26	12 34	70.1	29.9	4.19	5.98	1.5
3.9	3,000	1/40	.....do..........	1/24	.....do..........	1	5	165	46	128.0	42 00	21 25	20 35	51.0	49.0	3.05	5.98	1.5
4.3	2,900	1/33	.....do..........	1/20	.....do..........	1	5	165	46	162.0	42 00	27 06	14 54	64.5	35.5	3.86	5.98	1.5
4.8	2,900	1/33	.....do..........	1/22	.....do..........	1	5	165	46	105.0	42 00	22 36	19 24	53.8	46.2	2.50	5.98	1.9
3.6	3,200	1/45	.....do..........	1/24	.....do..........	1	5	165	46	107.0	42 00	17 54	24 06	42.6	57.4	2.55	5.98	1.5
3.2	2,100	1/50	.....do..........	1/26	.....do..........	1	4	165	50	131.0	42 00	24 31	17 29	58.4	41.6	3.12	5.50	1.6
3.9	2,800	1/40	.....do..........	1/22	.....do..........	1	4	165	50	164.0	42 00	29 49	12 11	71.0	29.0	3.90	5.50	1.6
4.7	2,900	1/33	.....do..........	1/20	.....do..........	1	5	165	50	166.0	42 00	30 11	11 49	71.9	28.1	3.95	5.50	1.6
4.0	2,800	1/40	.....do..........	1/22	.....do..........	1	4	165	50	165.0	42 00	30 00	12 00	71.4	28.6	3.93	5.50	1.6
4.1	2,800	1/40	.....do..........	1/22	.....do..........	1	4	165	50	158.0	42 00	28 44	13 16	68.4	31.6	3.76	5.50	1.6
4.0	2,800	1/40	.....do..........	1/22	.....do..........	1	4	165	50	148.0	42 00	26 55	15 05	64.1	35.9	3.52	5.50	1.6
4.2	2,800	1/40	.....do..........	1/22	.....do..........	1	4	165	50	88.0	31 30	16 20	15 10	51.8	48.2	2.81	4.58	1.6
4.0	2,800	1/40	.....do..........	1/22	.....do..........	1	4	165	50	447.0	126 00	81 16	44 44	64.5	35.5	3.55	5.50	1.6
3.6	2,448	1/45	.....do..........	1/26	.....do..........	1	11	165	50	151.0	42 00	27 27	14 33	65.4	34.6	3.60	5.50	1.6
3.5	2,448	1/45	.....do..........	1/26	.....do..........	1	11	165	50	130.0	42 00	23 38	18 22	56.3	43.7	3.10	5.50	1.6
2.6	2,448	1/45	.....do..........	1/26	.....do..........	1	5	165	50	161.0	42 00	29 16	12 44	69.8	30.3	3.83	5.50	1.6
3.5	2,448	1/45	.....do..........	1/26	.....do..........	1	5	165	50	127.0	42 00	23 05	18 55	55.0	45.0	3.02	5.50	1.6
4.0	2,448	1/45	.....do..........	1/26	.....do..........	1	5	165	50	168.0	42 00	30 33	11 27	72.7	27.3	4.00	5.50	1.6
3.5	2,448	1/45	.....do..........	1/26	.....do..........	1	5	165	50	176.0	42 00	32 00	10 00	76.2	23.8	4.19	5.50	1.6
3.4	2,448	1/45	.....do..........	1/26	.....do..........	1	5	165	50	153.0	42 00	27 49	14 11	66.2	33.8	3.64	5.50	1.6
3.4	2,448	1/45	.....do..........	1/26	.....do..........	1	5	165	50	166.0	42 00	30 11	11 49	71.9	28.1	3.95	5.50	1.6
3.7	2,448	1/45	.....do..........	1/26	.....do..........	1	11	165	50	153.0	42 00	27 49	14 11	66.2	33.8	3.64	5.50	1.6
3.4	2,448	1/45	.....do..........	1/26	.....do..........	1	11	165	50	147.0	42 00	26 44	15 16	63.6	36.3	3.50	5.50	1.6
4.0	2,800	1/40	.....do..........	1/22	.....do..........	1	4	165	50	115.0	42 00	20 55	21 05	49.8	50.2	2.74	5.50	1.6
4.7	2,900	1/33	.....do..........	1/20	.....do..........	1	5	165	50	122.0	42 00	22 11	19 49	52.8	47.2	2.90	5.50	1.6
3.5	2,100	1/45	.....do..........	1/26	.....do..........	1	4	165	52	148.0	42 00	27 59	14 01	66.6	33.4	3.52	5.29	1.6
3.5	2,100	1/45	.....do..........	1/26	.....do..........	1	4	165	52	152.0	42 00	28 44	13 16	68.4	31.6	3.62	5.29	1.6
2.6	2,100	1/45	.....do..........	1/26	.....do..........	1	4	165	52	131.0	42 00	24 46	17 14	59.0	41.0	3.12	5.29	1.6
3.5	2,448	1/45	.....do..........	1/26	.....do..........	1	4	165	52	115.0	42 00	22 36	19 24	53.2	46.8	2.74	5.29	1.6
3.8	2,448	1/40	.....do..........	1/26	.....do..........	1	5	165	52	143.0	42 00	27 02	14 58	64.4	35.6	3.40	5.29	1.6
3.3	2,100	1/45	.....do..........	1/26	.....do..........	1	4	165	52	136.0	42 00	25 43	16 17	61.2	38.8	3.24	5.29	1.6
3.8	2,448	1/40	.....do..........	1/26	.....do..........	1	5	165	52	165.0	42 00	31 12	10 48	74.3	25.7	3.93	5.29	1.6
3.4	2,100	1/45	.....do..........	1/26	.....do..........	1	4	165	52	168.0	42 00	31 46	10 14	75.6	24.4	4.00	5.29	1.6
8.4	4,600	1/35	.....do..........	1/32	.....do..........	1	4	140	88	85.0	42 00	32 04	9 56	76.3	23.7	2.02	2.65	5.2
8.4	4,600	1/35	.....do..........	1/28	.....do..........	1	4	140	76	95.0	42 00	30 56	11 04	73.7	26.3	2.26	3.07	4.5
8.5	4.600	1/35	.....do..........	1/28	.....do..........	1	4	140	76	97.0	36 00	31 35	4 25	87.8	12.2	2.69	3.07	4.5
8.4	5,600	1/34	.....do..........	1/26	.....do..........	1	5	140	66	110.0	42 00	31 07	10 53	74.1	25.9	2.62	3.54	3.9

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

MISCELLANEOUS WORSTED FABRICS—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
8.5	4,600	1/35	Cotton	1/28	Worsted	1	4	140	76	96.0	42 00	31 16	10 44	74.4	25.6	2.29	3.07	4.5
8.4	4,600	1/35	do	1/28	do	1	4	140	76	78.0	38 00	25 25	12 35	66.4	33.6	2.05	3.07	4.5
8.1	4,600	1/35	do	1/28	do	1	4	140	76	72.0	38 00	23 14	14 46	61.1	38.9	1.89	3.07	4.5
8.5	4,600	1/34	do	1/28	do	1	4	140	76	85.0	39 00	27 41	11 19	71.0	29.0	2.18	3.07	4.5
8.7	4,600	1/35	do	1/32	do	1	4	140	88	87.0	42 00	32 49	9 11	78.1	21.9	2.07	2.65	4.8
3.3	2,448	1/50	do	1/32	do	1	12	165	50	126.0	42 00	23 14	18 46	55.3	44.7	3.00	5.42	1.6
4.7	2,700	1/35	do	1/32	do	1	4	165	88	91.0	42 00	29 07	12 53	69.3	30.7	2.17	3.13	2.8
4.1	2,300	1/35	do	1/26	do	1	5	165	50	114.0	42 00	21 09	20 51	50.4	49.6	2.71	5.39	1.8
3.5	2,448	1/50	do	1/26	do	1	12	165	52	111.0	42 00	20 59	21 01	50.0	50.0	2.64	5.29	1.6
3.2	2,448	1/50	do	1/26	do	1	12	165	52	119.0	42 00	22 30	19 30	48.8	51.2	2.77	5.29	1.6
3.5	2,100	1/45	do	1/26	do	1	4	165	52	154.0	42 00	29 07	12 53	69.3	30.7	3.67	5.29	1.6
3.5	2,448	1/50	do	1/26	do	1	12	165	52	157.0	42 00	29 41	12 19	70.7	29.3	3.74	5.29	1.6
3.5	2,448	1/50	do	1/26	do	1	12	165	52	134.0	42 00	25 20	16 40	60.3	39.7	3.19	5.29	1.6
3.4	2,448	1/50	do	1/26	do	1	12	165	52	136.0	42 00	25 43	16 17	61.2	38.8	3.24	5.29	1.6
3.6	2,448	1/50	do	1/26	do	1	12	165	52	105.0	42 00	21 36	20 24	51.4	48.6	2.50	4.86	1.6
3.6	2,448	1/50	do	1/26	do	1	12	165	54	120.0	42 00	23 34	18 26	56.1	43.9	2.86	5.09	1.7
3.4	2,448	1/50	do	1/26	do	1	12	165	54	136.0	42 00	26 43	15 17	63.6	36.4	3.24	5.09	1.7
3.5	2,448	1/50	do	1/26	do	1	12	165	54	137.0	42 00	26 54	15 06	64.0	36.0	3.26	5.09	1.7
3.6	2,448	1/50	do	1/26	do	1	12	165	54	121.0	42 00	23 27	18 33	55.8	44.2	2.88	5.16	1.7
4.7	2,700	1/36	do	1/26	do	1	8	165	54	100.0	42 00	19 23	22 37	46.2	53.8	2.38	5.16	1.7
3.4	2,448	1/50	do	1/26	do	1	12	165	54	98.0	42 00	19 14	22 46	45.8	54.2	2.33	5.09	1.7
4.0	2,300	1/35	do	1/26	do	1	5	165	56	100.0	42 00	20 02	21 58	47.9	52.1	2.38	4.99	1.8
4.1	2,300	1/35	do	1/26	do	1	5	165	56	110.0	42 00	22 24	19 36	53.3	46.7	3.55	4.91	1.8
4.0	2,300	1/35	do	1/26	do	1	5	165	56	111.0	40 00	22 36	17 24	56.5	43.5	2.78	4.91	1.8
4.1	2,300	1/35	do	1/26	do	1	5	165	56	122.0	40 00	24 50	15 10	62.1	37.9	3.05	4.91	1.8
3.6	2,448	1/50	do	1/26	do	1	12	165	56	99.0	42 00	23 41	18 19	56.4	43.6	2.36	4.18	1.8

3.6	2,448	1/50	.....do.........	1/26	.....do.........	1	12	165	56	113.0	42 00	22 38	19 22	53.9	46.1	2.69	4.99	1.8
4.0	2,300	1/35	.....do.........	1/26	.....do.........	1	5	165	56	116.0	40 00	23 37	16 23	59.0	41.0	2.90	4.91	1.8
4.1	2,300	1/35	.....do.........	1/26	.....do.........	1	5	165	56	133.0	40 00	27 05	12 55	67.7	32.3	3.30	4.91	1.8
4.0	2,300	1/35	.....do.........	1/26	.....do.........	1	5	165	56	122.0	42 00	24 50	17 10	59.7	40.3	2.90	4.91	1.8
4.5	2,448	1/36	.....do.........	1/26	.....do.........	1	12	165	60	83.0	40 00	18 07	21 53	45.3	54.7	2.08	4.58	1.9
4.1	3,200	1/33	.....do.........	1/26	.....do.........	1	5	165	60	100.0	31 30	23 39	7 51	75.1	24.9	3.17	4.23	1.9
4.0	2,900	1/50	.....do.........	1/26	.....do.........	1	4	165	60	104.0	40 00	22 41	17 19	56.7	43.3	2.60	4.58	1.9
4.5	3,200	1/33	.....do.........	1/26	.....do.........	1	5	165	60	113.0	42 00	26 41	15 19	63.5	36.5	2.69	4.23	1.9
6.4	2,800	2/40	.....do.........	1/26	.....do.........	1	8	165	74	103.0	40 00	27 27	12 33	68.6	31.4	2.58	3.72	2.4
6.2	2,800	2/40	.....do.........	1/26	.....do.........	1	8	165	74	76.0	31 30	20 27	11 03	64.9	35.1	2.41	3.72	2.4
5.9	2,800	2/40	.....do.........	1/26	.....do.........	1	8	165	74	110.0	40 00	29 36	10 24	74.0	26.0	2.75	3.72	2.4
6.2	2,800	2/40	.....do.........	1/26	.....do.........	1	8	165	74	111.0	40 00	29 52	10 08	74.7	25.3	2.78	3.72	2.4
3.4	2,800	2/40	.....do.........	1/26	.....do.........	1	8	165	74	102.0	40 00	27 27	12 33	59.0	41.0	2.55	3.72	2.4
4.8	2,300	1/35	.....do.........	1/26	.....do.........	1	5	165	74	88.0	40 00	23 41	16 19	59.2	40.8	2.20	3.72	1.8
6.4	2,800	1/40	.....do.........	1/28	.....do.........	1	8	165	80	81.0	42 00	23 34	18 26	56.1	43.9	1.93	3.44	2.6
5.6	3,200	2/33	.....do.........	1/22	.....do.........	1	8	165	66	121.0	42 00	27 03	14 57	64.4	35.6	2.88	4.47	2.2
5.4	3,192	1/45	.....do.........	1/28	.....do.........	1	2	128	59	30.5	14 30	8 26	6 04	58.2	41.8	2.10	3.62	1.93
5.4	3,192	1/45	.....do.........	1/28	.....do.........	1	2	128	59	121.3	44 05	33 33	10 32	76.1	23.9	2.75	3.62	1.71
5.5	3,192	1/45	.....do.........	1/28	.....do.........	1	2	128	59	96.7	38 11	26 45	11 26	70.0	30.0	2.53	3.62	1.71
4.0	2,284	1/45	.....do.........	1/28	.....do.........	1	2	147	59	141.2	42 54	34 00	8 54	79.3	20.7	3.29	4.15	1.5
4.0	2,284	1/45	.....do.........	1/28	.....do.........	1	2	147	59	107.0	36 54	25 46	11 08	69.8	30.2	2.90	4.15	1.49
3.9	2,284	1/45	.....do.........	1/28	.....do.........	1	2	147	59	147.3	48 18	35 28	12 50	73.4	26.6	3.05	4.15	1.17
4.0	2,284	1/45	.....do.........	1/28	.....do.........	1	2	147	59	134.7	42 17	32 26	9 51	76.7	23.3	3.19	4.15	1.57
4.0	2,284	1/45	.....do.........	1/28	.....do.........	1	2	147	59	140.4	42 49	33 49	9 00	79.0	21.0	3.28	4.15	1.51
3.9	2,284	1/45	.....do.........	1/28	.....do.........	1	2	147	59	108.4	46 00	26 06	19 54	56.7	43.3	2.35	4.15	1.19
3.9	2,284	1/45	.....do.........	1/28	.....do.........	1	2	147	59	108.2	33 55	26 04	7 51	76.8	23.2	3.19	4.15	1.19
4.4	2,686	1/45	.....do.........	1/28	.....do.........	1	2	128	59	137.9	46 45	36 08	10 37	77.3	22.7	2.95	3.62	.99
4.4	3,632	1/45	.....do.........	1/28	.....do.........	1	2	128	59	99.9	37 35	27 38	9 57	73.5	26.5	2.66	3.62	1.02
4.0	2,280	1/45	.....do.........	1/28	.....do.........	1	2	147	59	141.0	41 08	33 58	7 10	82.6	17.4	3.43	4.15	1.5
4.1	2,492	1/45	.....do.........	1/28	.....do.........	1	2	147	62	129.4	45 20	32 45	12 35	71.7	28.3	2.83	3.95	1.33
4.0	2,492	1/45	.....do.........	1/28	.....do.........	1	2	147	62	97.8	37 52	24 45	13 07	65.4	34.6	2.58	3.95	1.35
4.1	2,492	1/45	.....do.........	1/28	.....do.........	1	2	147	62	161.5	50 08	40 52	9 16	81.5	18.5	3.22	3.95	1.54
4.1	2,492	1/45	.....do.........	1/28	.....do.........	1	2	147	62	159.3	46 36	40 19	6 17	86.5	13.5	3.42	3.95	1.6
4.1	2,492	1/45	.....do.........	1/28	.....do.........	1	2	147	62	130.6	49 17	33 03	16 14	67.1	32.9	2.65	3.95	1.32
4.0	2,268	1/45	.....do.........	1/28	.....do.........	1	10	147	64	68.9	25 07	18 00	7 07	71.7	28.3	2.74	3.83	1.57
3.1	2,876	1/45	.....do.........	1/28	.....do.........	1	2	140	64	132.4	40 19	36 19	4 00	90.1	9.9	3.28	3.65	2.08
4.5	3,426	1/45	.....do.........	1/28	.....do.........	1	2	147	64	137.1	48 20	35 49	12 31	74.1	25.9	2.84	3.83	1.28
4.1	2,816	1/45	.....do.........	1/28	.....do.........	1	18	147	64	138.8	49 55	36 16	13 39	72.7	27.3	2.78	3.83	1.5
4.0	2,126	1/45	.....do.........	1/28	.....do.........	1	2	147	64	34.8	11 15	9 05	2 10	80.7	19.3	3.09	3.83	1.36
4.0	2,368	1/45	.....do.........	1/28	.....do.........	1	10	147	64	133.3	43 10	34 49	8 21	80.7	19.3	3.09	3.83	1.62
4.5	3,426	1/45	.....do.........	1/28	.....do.........	1	2	147	64	136.2	40 51	35 35	5 16	87.1	12.9	3.33	3.83	1.53
4.0	2,268	1/45	.....do.........	1/28	.....do.........	1	10	147	64	132.3	51 09	34 34	16 35	67.6	32.4	2.59	3.83	1.63
4.5	3,426	1/45	.....do.........	1/28	.....do.........	1	2	147	64	135.7	46 37	35 27	11 10	76.0	24.0	2.91	3.83	1.53
4.0	2,268	1/45	.....do.........	1/28	.....do.........	1	10	147	64	132.8	46 42	34 41	12 01	74.3	25.7	2.84	3.83	1.63
4.5	3,426	1/45	.....do.........	1/28	.....do.........	1	2	147	64	101.7	35 52	26 34	9 18	74.1	25.9	2.84	3.83	1.53
4.0	2,268	1/45	.....do.........	1/28	.....do.........	1	10	147	64	100.7	37 11	26 19	10 52	70.8	29.2	2.71	3.83	1.61
4.0	2,268	1/45	.....do.........	1/28	.....do.........	1	10	147	64	102.5	32 15	26 47	5 28	83.0	17.0	3.18	3.83	1.58
4.0	2,816	1/45	.....do.........	1/28	.....do.........	1	18	147	64	68.7	35 55	17 57	17 58	49.9	50.1	1.91	3.83	1.51
4.0	2,268	1/45	.....do.........	1/28	.....do.........	1	10	147	64	135.3	43 51	35 20	8 31	80.6	19.4	3.09	3.83	1.6
4.5	3,426	1/45	.....do.........	1/28	.....do.........	1	2	147	64	134.4	40 15	35 07	5 08	87.2	12.8	3.34	3.83	1.55
4.0	2,268	1/45	.....do.........	1/28	.....do.........	1	10	147	64	102.0	35 24	26 39	8 45	75.3	24.7	2.88	3.83	1.47
4.5	3,426	1/45	.....do.........	1/28	.....do.........	1	2	147	64	135.3	44 30	35 20	9 10	79.4	20.6	3.04	3.83	1.3
4.0	2,268	1/45	.....do.........	1/28	.....do.........	1	10	147	64	65.9	28 36	17 18	11 23	60.2	39.8	2.30	3.83	1.54

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

MISCELLANEOUS WORSTED FABRICS—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
4.5	3,426	1/45	Cotton	1/28	Worsted	1	2	147	64	170.9	51 43	44 38	7 05	86.3	13.7	3.30	3.83	1.52
4.5	3,426	1/45	do	1/28	do	1	2	147	64	134.8	46 32	35 13	11 19	75.7	24.3	2.90	3.83	1.54
4.5	3,426	1/45	do	1/28	do	1	2	147	64	138.4	47 00	36 09	10 51	76.9	23.1	2.94	3.83	1.54
4.0	2,268	1/45	do	1/28	do	1	10	147	64	133.8	45 15	34 57	10 18	77.2	22.8	2.96	3.83	1.61
4.2	2,876	1/45	do	1/28	do	1	2	147	64	132.7	42 42	34 40	8 02	81.2	18.8	3.11	3.83	1 57
4.1	2,816	1/45	do	1/28	do	1	18	147	64	133.0	40 05	34 44	5 21	86.7	13.3	3.32	3.83	1.56
4.0	2,268	1/45	do	1/28	do	1	10	147	64	131.6	48 34	34 23	14 11	70.8	29.2	2.71	3.83	1.65
4.5	3,426	1/45	do	1/28	do	1	2	147	64	134.6	41 53	35 10	6 43	84.0	16.0	3.21	3.83	1.55
4.0	2,268	1/45	do	1/28	do	1	10	147	64	65.7	30 11	17 10	13 01	56.9	43.1	2.18	3.83	1.64
4.0	2,268	1/45	do	1/28	do	1	10	147	64	99.0	47 35	25 52	21 43	54.4	45.6	2.08	3.83	1.64
4.0	2,268	1/45	do	1/28	do	1	10	147	64	134.3	40 17	35 05	5 12	87.1	12.9	3.33	3.83	1.61
4.5	3,426	1/45	do	1/28	do	1	2	147	64	168.2	50 16	43 56	6 20	87.4	12.6	3.35	3.83	1.55
4.0	2,268	1/45	do	1/28	do	1	10	147	64	134.8	41 35	35 13	6 22	84.7	15.3	3.24	3.83	1.6
4.5	3,426	1/45	do	1/28	do	1	2	147	64	166.7	48 11	43 33	4 38	73.1	26.9	3.46	3.83	1.56
4.5	3,426	1/45	do	1/28	do	1	2	147	64	131.1	41 16	34 15	7 01	83.0	17.0	3.18	3.83	1.59
4.0	2,268	1/45	do	1/28	do	1	10	147	64	129.8	43 55	33 55	10 00	77.2	22.8	2.96	3.83	1.66
4.0	2,268	1/45	do	1/28	do	1	10	147	64	166.2	56 02	43 25	12 37	77.5	22.5	2.97	3.83	1.62
4.0	2,268	1/45	do	1/28	do	1	10	147	64	131.8	44 12	34 26	9 46	77.9	22.1	2.98	3.83	1.64
4.0	2,268	1/45	do	1/28	do	1	10	147	64	130.8	44 41	34 10	10 31	76.5	23.5	2.93	3.83	1.65
4.0	2,268	1/45	do	1/28	do	1	10	147	64	131.3	47 10	34 18	12 52	72.7	27.3	2.78	3.83	1.65
4.1	2,816	1/45	do	1/28	do	1	18	147	64	141.0	44 45	36 50	7 55	82.3	17.7	3.15	3.83	1.43
4.1	2,816	1/45	do	1/28	do	1	18	147	64	135.2	49 05	35 19	13 46	72.0	28.0	2.75	3.83	1.54
4.1	2,876	1/45	do	1/28	do	1	2	147	64	135.5	42 59	35 24	7 35	82.4	17.6	3.15	3.83	1.54
4.0	2,268	1/45	do	1/28	do	1	10	147	64	133.3	43 19	34 49	8 30	80.4	19.6	3.08	3.83	1.62
4.0	2,268	1/45	do	1/28	do	1	10	147	64	164.2	52 48	42 53	9 55	81.2	18.8	3.11	3.83	1.64
4.5	3,426	1/45	do	1/28	do	1	2	147	64	135.1	43 48	35 17	8 31	80.6	19.4	3.08	3.83	1.54

4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	102.4	41 13	26 45	14 28	64.9	35.1	2.48	3.83	1.52
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	100.6	35 40	26 17	9 23	73.7	26.3	2.82	3.83	1.55
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	100.5	36 05	26 15	9 50	72.8	27.2	2.79	3.83	1.49
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	98.3	36 53	25 41	11 12	69.6	30.4	2.67	3.83	1.65
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	130.8	46 00	34 10	11 50	74.3	25.7	2.84	3.83	1.65
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	131.8	42 23	34 26	7 57	81.2	18.8	3.11	3.83	1.64
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	134.4	43 40	35 06	8 34	80.4	19.6	3.08	3.83	1.55
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	133.9	44 23	34 59	9 24	78.8	21.2	3.02	3.83	1.55
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	133.7	40 25	34 56	5 29	86.4	13.6	3.31	3.83	1.56
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	164.2	50 26	32 54	17 32	85.0	15.0	3.26	3.83	1.64
4.1	2,816	1/45	.....do..........	1/28	.....do.........	1	18	147	64	76.4	22 40	19 57	2 43	88.0	12.0	3.37	3.83	1.36
4.2	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	165.2	53 45	43 09	10 36	80.3	19.7	3.07	3.83	1.57
4.0	2,126	1/45	.....do..........	1/28	.....do.........	1	2	147	64	83.3	18 05	8 42	4 23	66.5	33.5	2.55	3.83	1.2
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	99.2	39 09	25 55	13 14	66.2	33.8	2.53	3.83	1.33
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	138.3	47 00	34 49	12 11	74.1	25.9	2.84	3.83	1.32
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	136.2	49 24	35 35	13 49	72.0	28.0	2.76	3.83	1.29
4.2	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	128.2	44 18	33 29	10 49	75.6	24.4	2.89	3.83	1.37
4.2	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	131.5	44 35	34 21	10 14	77.0	23.0	2.95	3.83	1.3
4.1	2,816	1/45	.....do..........	1/28	.....do.........	1	18	147	64	140.0	45 03	36 34	8 29	81.2	18.8	3.11	3.83	1.49
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	168.7	50 16	44 04	6 12	87.7	12.3	3.36	3.83	1.54
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	127.9	38 43	33 25	5 18	86.3	13.7	3.30	3.83	1.63
4.2	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	130.8	42 07	34 10	7 57	81.1	18.9	3.11	3.83	1.59
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	133.3	42 44	34 49	7 55	81.5	18.5	3.12	3.83	1.56
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	135.7	41 45	35 27	6 18	84.9	15.1	3.25	3.83	1.53
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	99.7	33 26	26 02	7 24	77.9	22.1	2.98	3.83	1.62
4.1	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	133.5	42 49	34 52	7 57	81.4	18.6	3.12	3.83	1.56
4.2	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	131.5	41 59	34 21	7 38	82.5	17.5	3.16	3.83	1.58
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	167.5	49 39	43 46	5 53	88.2	11.8	2.16	3.83	1.31
4.1	2,816	1/45	.....do..........	1/28	.....do.........	1	18	147	64	99.9	42 12	26 06	16 06	61.8	38.2	2.37	3.83	1.56
4.1	2,816	1/45	.....do..........	1/28	.....do.........	1	18	147	64	138.1	47 58	36 05	11 53	75.2	24.8	2.88	3.83	1.51
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	137.1	46 43	35 49	10 54	76.7	23.3	2.93	3.83	1.52
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	109.5	32 15	28 36	3 39	88.7	11.3	3.40	3.83	1.42
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	130.8	40 45	34 10	6 35	83.8	16.2	3.21	3.83	1.65
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	135.3	44 31	35 20	9 11	79.4	20.6	3.04	3.83	1.54
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	133.5	48 09	34 52	13 17	72.4	27.6	2.77	3.83	1.56
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	97.0	37 49	25 20	12 29	67.0	33.0	2.56	3.83	1.67
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	99.0	38 50	25 52	12 58	66.6	33.4	2.55	3.83	1.64
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	133.3	43 16	34 49	8 27	80.5	19.5	3.08	3.83	1.55
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	135.9	46 14	35 32	10 42	76.9	23.1	2.94	3.83	1.53
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	131.8	45 30	34 26	11 04	75.7	24.3	2.90	3.83	1.64
4.2	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	130.5	43 25	34 05	9 20	78.5	21.5	3.01	3.83	1.59
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	134.4	41 28	35 07	6 21	84.7	15.3	3.24	3.83	1.55
4.2	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	98.5	34 17	25 44	8 33	75.1	24.9	2.87	3.83	1.58
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	132.8	45 21	34 41	10 40	76.5	23.5	2.93	3.83	1.57
4.1	2,816	1/45	.....do..........	1/28	.....do.........	1	18	147	64	35.3	16 20	9 13	7 07	56.5	43.5	2.16	3.83	1.47
4.2	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	132.4	39 49	34 35	5 14	86.9	13.1	3.33	3.83	1.81
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	98.6	33 42	25 45	7 57	76.4	23.6	2.93	3.83	1.58
4.2	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	131.5	42 59	34 21	8 38	79.9	20.1	3.06	3.83	1.58
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	65.7	34 00	17 10	16 50	50.5	49.5	1.93	3.83	1.64
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	99.2	45 44	25 55	19 49	56.7	43.3	2.17	3.83	1.57
4.2	2,876	1/45	.....do..........	1/28	.....do.........	1	2	147	64	96.6	32 28	25 14	7 14	77.7	22.3	2.98	3.83	1.61
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	131.8	44 13	34 26	9 47	77.9	22.1	2.98	3.83	1.64
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	133.9	41 58	34 59	6 59	83.4	16.6	3.19	3.83	1.55

Table 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

MISCELLANEOUS WORSTED FABRICS—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
											Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.			Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
4.0	2,268	1/45	Cotton	1/28	Worsted	1	10	147	64	164.2	54 47	42 54	11 53	76.4	23.6	3.00	3.83	1.64
4.1	2,816	1/45	do	1/28	do	1	18	147	64	34.3	16 17	8 58	7 19	55.1	44.9	2.11	3.83	1.52
4.0	2,126	1/45	do	1/28	do	1	2	147	64	65.9	21 32	17 13	4 19	80.0	20.0	3.06	3.83	1.46
4.5	3,426	1/45	do	1/28	do	1	2	147	64	134.8	39 39	35 13	4 26	88.8	11.2	3.40	3.83	1.54
4.5	3,426	1/45	do	1/28	do	1	2	147	64	136.4	47 15	35 38	8 37	75.4	24.6	2.89	3.83	1.29
4.2	2,876	1/45	do	1/28	do	1	2	147	64	97.5	38 53	25 28	13 25	65.5	34.5	2.51	3.83	1.35
4.5	3,426	1/45	do	1/28	do	1	2	147	64	101.9	36 06	26 37	9 29	73.7	26.3	2.82	3.83	1.3
4.5	3,426	1/45	do	1/28	do	1	2	147	64	99.7	36 39	26 02	10 37	71.0	29.0	2.72	3.83	1.32
4.5	3,426	1/45	do	1/28	do	1	2	147	64	101.9	42 23	26 37	15 46	62.8	37.2	2.40	3.83	1.3
4.5	3,426	1/45	do	1/28	do	1	2	147	64	31.6	10 51	8 15	2 36	76.0	24.0	2.91	3.83	1.39
4.2	2,876	1/45	do	1/28	do	1	2	147	64	128.7	44 34	33 37	10 57	75.4	24.6	2.89	3.83	1.37
4.2	2,876	1/45	do	1/28	do	1	2	147	64	131.5	43 04	34 21	8 43	79.8	20.2	3.06	3.83	1.34
4.2	2,876	1/45	do	1/28	do	1	2	147	64	131.2	45 00	34 16	10 44	76.2	23.8	2.92	3.83	1.34
4.5	3,426	1/45	do	1/28	do	1	2	147	64	97.9	35 33	25 34	9 59	71.9	28.1	2.75	3.83	1.35
4.5	3,426	1/45	do	1/28	do	1	2	147	64	131.1	45 19	34 15	11 04	75.6	24.4	2.89	3.83	1.34
4.2	2,876	1/45	do	1/28	do	1	2	147	64	131.0	45 08	34 13	10 55	75.8	24.2	2.90	3.83	1.34
4.5	3,426	1/45	do	1/28	do	1	2	147	64	133.7	42 07	34 56	7 11	82.9	17.1	3.17	3.83	1.32
4.5	3,426	1/45	do	1/28	do	1	2	147	64	128.2	39 52	33 30	6 22	84.0	16.0	3.22	3.83	1.37
4.1	2,816	1/45	do	1/28	do	1	2	147	64	134.5	43 43	35 08	8 35	80.4	19.6	3.08	3.83	1.55
4.1	2,400	1/45	do	1/28	do	1	8	140	66	67.5	28 13	20 53	7 20	74.0	26.0	2.39	3.23	1.6
4.1	2,400	1/45	do	1/28	do	1	8	128	66	133.1	46 35	41 11	5 24	88.4	11.6	2.86	3.23	1.63
4.1	2,400	1/45	do	1/28	do	1	8	128	66	138.1	48.35	42 43	5 52	87.9	12.1	2.84	3.23	1.56
4.1	2,400	1/45	do	1/28	do	1	8	128	66	135.9	48 23	42 03	6 20	86.9	13.1	2.81	3.23	1.59
4.1	2,400	1/45	do	1/28	do	1	8	147	66	83.5	12 23	9 01	3 22	72.8	27.2	2.70	3.71	1.61
4.0	2,111	1/45	do	1/28	do	1	14	128	68	98.0	47 21	31 14	16 07	66.0	34.0	2.07	3.14	1.81
4.0	2,111	1/45	do	1/28	do	1	14	128	68	135.6	52 47	43 13	9 34	81.9	18.1	2.57	3.14	1.74

4.0	2,111	1/45	.....do..........	1/28	.....do.........	1	14	128	68	138.1	54 23	44 01	10 22	80.9	19.1	2.54	3.14	1.71
4.0	2,111	1/45	.....do..........	1/28	.....do.........	1	14	128	68	102.0	43 21	32 31	10 50	75.0	25.0	2.35	3.14	1.74
4.2	2,272	1/45	.....do..........	1/28	.....do.........	1	12	140	68	131.7	46 11	41 59	4 12	90.9	9.1	2.85	3.14	1.62
4.0	2,111	1/45	.....do..........	1/28	.....do.........	1	14	140	68	68.8	30 14	21 56	8 18	72.5	27.5	2.28	3.14	1.72
4.0	2,111	1/45	.....do..........	1/28	.....do.........	1	14	147	68	98.3	35 38	27 17	8 21	76.6	23.4	2.76	3.60	1.8
4.0	2,111	1/45	.....do..........	1/28	.....do.........	1	14	147	68	133.7	47 25	37 07	10 18	78.3	21.7	2.82	3 60	1.77
4.2	2,272	1/45	.....do..........	1/28	.... do.........	1	12	147	68	130.5	46 54	36 13	10 41	77.2	22.8	2 78	3.60	1.81
4.2	2,272	1/45	.....do..........	1/28	.....do.........	1	12	147	68	98.3	40 27	27 17	13 10	67.4	32.6	2.43	3.60	1.8
4.2	2,272	1/45	.....do	1/28	.....do.........	1	12	147	68	129.3	45 43	35 53	9 50	78.5	21.5	2.83	3.60	1.88
4.2	2,272	1/45	.....do..........	1/28	.....do.........	1	12	147	68	158.8	52 05	44 05	8 00	84.6	15.4	3.05	3.60	1.86
4.2	2,272	1/45	.....do..........	1/28	.....do.........	1	12	147	68	96.9	39 57	26 54	13 03	67.3	32.7	2.43	3.60	1.83
3.9	2,194	1/45	.....do..........	1/28	.....do.........	1	2	147	68	124.7	42 20	34 37	7 43	81.8	18.2	2.95	3.60	1.64
4.0	2,111	1/45	.....do..........	1/28	.....do.........	1	14	147	68	66.8	26 45	18 32	8 13	69.3	30.7	2.50	3.60	1.77
4.2	2,272	1/45	.....do..........	1/28	.....do.........	1	12	147	68	130.8	43 51	36 18	7 33	82.8	17.2	2.98	3.60	1.8
4.2	2,272	1/45	.....do..........	1/28	.....do.........	1	12	147	68	127.9	44 47	35 30	9 17	79.3	20.7	2.86	3.60	1.85
4.2	2,272	1/45	.....do..........	1/28	.....do.........	1	12	147	68	127.2	43 41	35 19	8 22	80.8	19.2	2.91	3.60	1.86
4.2	2,272	1/45	.....do..........	1/28	.....do.........	1	12	147	68	128.4	46 06	35 38	10 28	77.3	22.7	2.79	3.60	1.84
4.0	2,111	1/45	.....do..........	1/28	.....do.........	1	14	128	68	101.0	37 12	32 12	5 00	86.5	13.5	2.72	3.14	1.75
2.1	1,950	1/45	.....do..........	1/28	.....do.........	1	2	147	72	85.9	36 18	25 15	11 03	69.6	30.4	2.37	3.40	1.38
4.0	2,268	1/45	.....do..........	1/28	.....do.........	1	10	147	64	133.8	42 10	34 57	7 13	82.9	17.1	3.17	3.83	1.61
4.5	3,426	1/45	.....do..........	1/28	.....do.........	1	2	147	64	133.1	49 50	34 46	15 04	69.8	30.2	2.67	3.83	1.56
4.1	2,400	1/45	.....do..........	1/28	.....do.........	1	8	128	66	135.4	46 55	41 53	5 02	89.3	10.7	2.89	3.23	1.6
4.0	2,111	1/45	.....do..........	1/28	.....do.........	1	14	128	68	33.8	20 15	10 46	9 29	53.2	46.8	1.70	3.14	1.75
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	133.4	42 48	28 51	13 57	67.4	32.6	3.12	4.62	1.15
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	133.9	46 50	28 58	17 52	61.9	38.1	2.86	4.62	1.16
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	137.9	44 13	29 50	14 23	69.0	31.0	3.19	4.62	1.11
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	133.4	36 23	28 52	7 31	79.3	20.7	3.67	4.62	1.15
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	175.1	49 48	37 53	11 55	76.1	23.9	3.52	4.62	1.17
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	176.5	50 25	38 11	12 14	75.7	24.3	3.50	4.62	1.17
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	128.8	42 59	27 52	15 07	64.8	35.2	3.00	4.62	1.19
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	175.9	52 32	38 03	14 29	72.7	27.3	3.36	4.62	1.16
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	132.8	43 36	28 43	14 53	65.9	34.1	3.05	4.62	1.15
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	132.8	49 40	28 44	20 56	57.9	42.1	2.67	4.62	1.15
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	176.5	52 10	37 59	14 11	72.8	27.2	3.38	4.62	1.16
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	133.4	42 27	28 52	13 35	68.0	32.0	3.14	4.62	1.15
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	133.4	50 12	28 52	21 20	57.5	42.5	2.66	4.62	1.15
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	175.9	44 12	38 03	6 09	86.9	13.1	3.98	4.62	1.16
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	132.8	42 18	28 44	13 34	67.9	32.1	3.14	4.62	1.15
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	135.1	31 33	29 12	2 21	92.6	7.4	4.28	4.62	1.13
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	134.5	39 03	29 06	9 57	74.5	25.5	3.44	4.62	1.14
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	133.4	37 49	28 52	8 57	76.3	23.7	3.53	4.62	1.15
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	175.9	49 35	38 03	11 32	76.7	23.3	3.55	4.62	1.16
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	171.4	49 50	37 05	12 45	74.4	25.6	3.44	4.62	1.17
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	139.0	39 25	30 04	9 21	76.3	23.7	3.53	4.62	1.15
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	178.2	49 12	38 33	10 39	78.4	21.6	3.62	4.62	1.14
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	136.8	44 38	29 36	15 02	66.3	33.7	3.06	4.62	1.12
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	132.8	37 38	28 44	8 54	76.4	23.6	3.53	4.62	1.15
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	133.9	39 32	28 58	10 34	73.3	26.7	3.39	4.62	1.14
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	147	53	133.9	35 06	28 58	6 08	82.5	17.5	3.81	4.62	1.05
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	128	53	135.6	42 40	33 41	8 59	78.9	21.1	3.18	4.03	.95
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	128	53	135.6	50 11	33 41	16 30	67.1	32.9	2.70	4.03	.95
3.5	2,450	1/50	.....do..........	1/28	.....do.........	1	2	128	53	133.4	39 17	33 08	6 09	84.3	15.7	3.40	4.03	.97

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

MISCELLANEOUS WORSTED FABRICS—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
3.5	2,450	1/50	Cotton	1/28	Worsted	1	2	128	53	136.2	40 11	33 50	6 21	84.2	15.8	3.39	4.03	0.95
3.5	2,450	1/50	do	1/28	do	1	2	128	53	135.6	41 20	33 41	7 39	81.5	18.5	3.28	4.03	.96
3.5	2,450	1/50	do	1/28	do	1	2	128	53	135.1	43 48	33 34	10 14	76.6	23.4	3.06	4.03	.94
3.5	2,450	1/50	do	1/28	do	1	2	128	53	90.8	35 56	22 34	13 22	65.6	34.4	2.53	4.03	.96
3.5	2,450	1/50	do	1/28	do	1	2	128	53	135.1	45 05	33 34	11 31	74.5	25.5	3.00	4.03	.96
3.5	2,450	1/50	do	1/28	do	1	2	128	53	88.2	30 34	21 55	8 39	71.7	28.3	2.89	4.03	.98
3.5	2,450	1/50	do	1/28	do	1	2	128	53	90.8	30 39	22 34	8 05	73.6	26.4	2.96	4.03	.97
3.5	2,450	1/50	do	1/28	do	1	2	128	53	89.7	37 01	22 17	14 44	60.2	39.8	2.42	4.03	.96
3.5	2,450	1/50	do	1/28	do	1	2	128	53	137.3	42 52	34 07	8 45	79.6	20.4	3.20	4.03	.94
3.5	2,450	1/50	do	1/28	do	1	2	128	53	179.0	56 11	44 28	11 43	79.1	20.9	3.19	4.03	.96
3.5	2,450	1/50	do	1/28	do	1	2	128	53	133.6	43 50	33 11	10 39	75.7	24.3	3.05	4.03	.97
3.5	2,450	1/50	do	1/28	do	1	2	128	53	45.4	15 04	11 17	3 47	74.9	25.1	3.01	4.03	.96
3.5	2,450	1/50	do	1/28	do	1	2	122	53	115.5	55 35	30 07	25 28	54.2	45.8	2.08	3.84	.97
3.5	2,450	1/50	do	1/28	do	1	2	122	53	98.7	39 41	25 44	13 57	64.8	35.2	2.49	3.84	.94
3.5	2,450	1/50	do	1/28	do	1	2	122	53	135.6	43 24	35 20	8 04	81.4	18.6	3.12	3.84	1.06
3.5	2,450	1/50	do	1/28	do	1	2	122	53	181.9	56 53	47 25	9 28	83.4	16.6	3.20	3.84	1.06
3.5	2,450	1/50	do	1/28	do	1	2	122	53	174.8	53 38	45 34	8 04	85.0	15.0	3.26	3.84	.98
3.5	2,450	1/50	do	1/28	do	1	2	122	53	127.1	41 35	33 08	8 27	79.7	20.3	3.06	3.84	1.04
3.5	2,450	1/50	do	1/28	do	1	2	122	53	134.5	44 33	35 03	9 30	78.7	21.3	3.02	3.84	1.07
3.4	2,592	1/45	do	1/28	do	1	2	147	46	175.0	44 30	32 52	11 38	73.9	26.1	3.93	5.33	1.01
3.4	2,592	1/45	do	1/28	do	1	2	147	46	175.8	47 49	32 55	14 54	69.6	30.4	3.71	5.33	1.0
3.4	2,592	1/45	do	1/28	do	1	2	147	46	176.8	43 25	33 12	10 13	76.9	23.1	4.10	5.33	1.0
3.4	2,592	1/45	do	1/28	do	1	2	147	46	134.2	38 08	25 12	12 56	66.1	33.9	3.52	5.33	.98
3.4	2,592	1/45	do	1/28	do	1	2	128	46	178.9	49 26	38 35	10 51	78.1	21.9	3.62	4.64	.85
3.4	2,592	1/45	do	1/28	do	1	2	122	46	136.9	47 48	30 58	16 50	64.8	35.2	2.86	4.42	.92
3.4	2,592	1/45	do	1/28	do	1	2	122	46	127.1	52 57	28 45	24 12	54.3	45.7	2.40	4.42	.[illegible]

3.5	2.450	1/50	do	1/28	do	1	2	128	53	134.0	38 45	33 17	5 28	85.9	14.1	3.46	4.03	1.34
3.5	2,450	1/50	do	1/28	do	1	2	140	53	131.9	47 28	29 58	17 30	63.1	36.9	2.78	4.40	1.38
3.5	2,450	1/50	do	1/28	do	1	2	147	53	134.5	38 45	29 06	9 39	75.1	24.9	3.47	4.62	1.14
3.5	2,450	1/50	do	1/28	do	1	2	147	53	87.4	28 53	24 58	3 55	86.6	13.4	3.03	3.50	1.17
3.5	2,450	1/50	do	1/28	do	1	2	147	53	132.8	47 23	37 57	9 26	80.1	19.9	2.80	3.50	1.15
3.5	2,450	1/50	do	1/28	do	1	2	147	53	95.9	34 24	27 24	7 00	79.7	20.3	2.79	3.50	1.06
3.5	2,450	1/50	do	1/28	do	1	2	147	53	131.7	45 13	28 29	16 44	63.0	37.0	2.91	4.62	1.16
3.5	2,450	1/50	do	1/28	do	1	2	147	53	131.4	43 20	28 26	14 54	65.6	34.4	3.03	4.62	1.16
3.5	2,450	1/50	do	1/28	do	1	2	147	53	91.1	34 03	19 42	14 21	57.8	42.2	2.68	4.62	1.12
3.5	2,450	1/50	do	1/28	do	1	2	147	53	134.5	47 25	29 06	18 19	61.4	38.6	2.84	4.62	1.14
3.5	2,450	1/50	do	1/28	do	1	2	147	53	133.9	38 19	28 58	9 21	75.6	24.4	3.49	4.62	1.14
3.5	2,450	1/50	do	1/28	do	1	2	147	53	173.7	51 16	37 35	13 41	73.3	26.7	3.39	4.62	1.17
3.5	2.450	1/50	do	1/28	do	1	2	147	53	133.4	39 40	28 51	10 49	72.8	27.2	3.36	4.62	1.15
3.5	2,450	1/50	do	1/28	do	1	2	147	53	132.8	38 55	28 44	10 11	73.8	26.2	3.41	4.62	1.15
3.5	2,450	1/50	do	1/28	do	1	2	147	53	174.8	53 15	37 49	15 26	71.0	29.0	3.28	4.62	1.17
3.5	2,450	1/50	do	1/28	do	1	2	147	53	133.4	40 54	28 51	12 03	70.6	29.4	3.26	4.62	1.15
3.5	2,450	1/50	do	1/28	do	1	2	147	53	132.8	42 18	28 44	13 34	67.9	32.1	3.14	4.62	2.28
3.5	2,450	1/50	do	1/28	do	1	2	147	53	177.3	49 35	38 21	11 14	77.3	22.7	3.58	4.62	1.15
3.5	2,450	1/50	do	1/28	do	1	2	147	53	180.5	41 19	28 14	13 05	68.3	31.7	3.16	4.62	1.17
3.5	2,450	1/50	do	1/28	do	1	2	147	53	127.7	43 17	27 37	15 40	63.8	36.2	2.95	4.62	1.2
3.5	2,450	1/50	do	1/28	do	1	2	147	53	175.9	50 13	38 03	12 10	75.8	24.2	3.50	4.62	1.16
3.5	2,450	1/50	do	1/28	do	1	2	147	53	136.2	41 15	29 28	11 47	71.4	28.6	3.30	4.62	1.44
3.5	2,450	1/50	do	1/28	do	1	2	147	53	87.9	28 47	19 01	9 46	66.1	33.9	3.05	4.62	1.16
3.5	2,450	1/50	do	1/28	do	1	2	147	53	177.6	53 26	38 25	15 01	71.9	28.1	3.32	4.62	1.15
3.5	2,450	1/50	do	1/28	do	1	2	147	53	132.2	44 02	28 36	15 26	64.9	35.1	3.00	4.62	1.16
3.5	2,450	1/50	do	1/28	do	1	2	147	53	178.9	47 42	37 37	10 05	78.9	21.1	3.65	4.62	1.17
3.5	2,450	1/50	do	1/28	do	1	2	147	53	131.9	37 54	28 32	9 22	75.3	24.7	3.48	4.62	1.16
3.5	2,450	1/50	do	1/28	do	1	2	147	53	133.4	40 07	28 21	11 46	70.7	29.3	3.33	4.62	1.15
3.5	2,450	1/50	do	1/28	do	1	2	147	53	135.1	40 51	29 14	11 37	71.6	28.4	3.31	4.62	1.24
3.5	2,450	1/50	do	1/28	do	1	2	147	53	178.8	47 42	38 41	9 01	81.1	18.9	3.75	4.62	1.14
3.5	2,450	1/50	do	1/28	do	1	2	147	53	135.1	38 16	29 14	9 02	76.4	23.6	3.53	4.62	1.24
3.5	2,450	1/50	do	1/28	do	1	2	147	53	177.6	52 08	38 25	13 43	73.7	26.3	3.41	4.62	1.15
3.5	2,450	1/50	do	1/28	do	1	2	147	53	134.2	41 05	29 02	12 03	70.7	29.3	3.27	4.62	1.14
3.5	2,450	1/50	do	1/28	do	1	2	147	53	133.9	38 36	28 58	9 38	75.0	25.0	3.47	4.62	1.14
3.5	2,450	1/50	do	1/28	do	1	2	147	53	132.8	38 34	28 44	9 50	74.5	25.5	3.44	4.62	1.13
3.5	2,450	1/50	do	1/28	do	1	2	147	53	131.7	49 04	28 29	20 35	58.0	42.0	2.68	4.62	1.16
3.5	2,450	1/50	do	1/28	do	1	2	147	53	132.2	42 10	28 36	13 34	67.8	32.2	3.14	4.62	1.16
3.5	2,450	1/50	do	1/28	do	1	2	147	53	135.9	43 29	29 24	14 05	67.6	32.4	3.13	4.62	1.18
3.5	2,450	1/50	do	1/28	do	1	2	147	53	132.8	39 24	28 44	10 40	72.9	27.1	3.37	4.62	1.15
3.5	2,450	1/50	do	1/28	do	1	2	147	53	140.2	41 01	30 20	10 41	73.9	26.1	3.42	4.62	1.09
3.5	2,450	1/50	do	1/28	do	1	2	122	53	138.5	49 14	36 06	13 08	73.3	26.7	2.81	3.84	1.04
3.5	2,450	1/50	do	1/28	do	1	2	122	53	89.7	31 12	23 23	7 49	74.9	25.1	2.88	3.84	1.07
3.5	2,450	1/50	do	1/28	do	1	2	122	53	90.2	43 30	23 31	19 59	54.0	46.0	2.07	3.84	.95
3.5	2,450	1/50	do	1/28	do	1	2	122	53	137.3	48 29	35 47	12 42	73.8	26.2	2.83	3.84	.83
3.9	2,832	1/50	do	1/28	do	1	2	128	53	87.3	26 35	21 48	4 52	81.7	18.3	3.29	4.03	.89
3.9	2,832	1/50	do	1/28	do	1	2	128	53	93.0	35 40	23 06	12 34	64.8	35.2	2.61	4.03	.84
3.8	2,832	1/50	do	1/28	do	1	2	128	53	37.5	16 15	9 19	6 56	57.3	42.7	2.31	4.03	1.04
3.8	2,832	1/50	do	1/28	do	1	2	128	53	137.1	42 20	34 04	8 16	80.5	19.5	3.24	4.03	0.85
12.6	2,640	2/24	Worsted	2/24	do	2	12	120	38	141.5	44 10	26 53	17 17	60.9	39.1	3.20	4.26	2.35
10.6	3,000	2/32	do	1/20	do	1	8	90	42	119.0	45 50	33 20	12 30	72.7	27.3	2.60	3.57	4.3
10.6	3,000	2/32	do	1/20	do	1	8	90	42	106.5	36 40	29 50	6 50	81.4	18.6	2.90	3.57	4.3
8.2	2,736	2/36	do	1/20	do	1	12	90	42	106.0	25 30	22 15	3 15	87.3	12.7	4.16	4.76	2,6
8.2	2,736	2/36	do	1/20	do	1	12	90	42	71.0	25 30	14 54	10 36	58.4	41,6	2.78	4.76	2.6

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WORSTED GOODS—Continued.

MISCELLANEOUS WORSTED FABRICS—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time— Loom was producing.	Actual time— Lost in stoppages.	Per cent of total time— Loom was producing.	Per cent of total time— Lost in stoppages.	Yards woven per hour— Of total time.	Yards woven per hour— Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
8.1	3,168	2/36	Worsted	1/30	Worsted	1	8	120	48	153.0	45 50	36 43	9 07	80.1	19.9	3.34	4.17	2.97
8.1	3,168	2/36	do	1/30	do	1	8	120	48	140.5	43 50	33 43	10 07	76.9	23.1	3.21	4.17	2.97
8.5	2,880	2/32	do	1/30	do	1	8	120	50	43.0	18 20	10 45	7 35	58.6	41.4	2.35	4.00	3.1
8.8	3,352	2/32	do	1/28	do	1	8	120	50	82.0	38 00	20 30	17 30	53.9	46.1	2.16	4.00	3.1
8.4	2,880	2/32	do	1/30	do	1	8	120	50	57.0	25 30	14 15	11 15	55.9	44.1	2.24	4.00	3.1
8.7	3,150	2/32	do	1/28	do	1	16	120	50	37.5	18 00	9 22	8 38	52.0	48.0	2.08	4.00	3.1
8.4	2,880	2/32	do	1/30	do	1	8	120	50	20.5	8 30	5 07	3 23	60.2	39.8	2.41	4.00	3.1
8.5	2,880	2/32	do	1/30	do	1	4	120	50	39.0	18 20	9 45	8 35	53.2	46.8	2.13	4.00	3.1
8.7	3,150	2/32	do	1/28	do	1	16	120	50	119.0	44 10	29 45	14 25	67.4	32.6	2.69	4.00	3.0
8.8	3,352	2/32	do	1/28	do	1	8	120	50	95.0	41 15	23 45	17 30	57.6	42.4	2.30	4.00	3.1
8.8	3,352	2/32	do	1/28	do	1	8	120	50	132.0	45 50	33 00	12 50	72.0	28.0	2.88	4.00	3.1
8.8	3,352	2/32	do	1/28	do	1	8	120	50	30.0	18 20	7 30	10 50	40.9	59.1	1.64	4.00	3.1
8.5	2,880	2/32	do	1/30	do	1	4	120	50	135.5	43 10	33 53	9 17	78.5	21.5	3.14	4.00	3.1
8.5	2,880	2/32	do	1/30	do	1	8	120	50	97.0	36 15	24 15	12 00	66.9	33.1	2.68	4.00	3.1
8.5	2,880	2/32	do	1/30	do	1	8	120	50	74.0	25 30	18 30	7 00	72.5	27.5	2.90	4.00	3.1
9.3	3,120	2/32	do	1/28	do	2	4	120	52	113.5	43 50	29 31	14 19	67.3	32.7	2.59	3.85	3.22
9.1	3,120	2/32	do	1/30	do	2	12	120	52	64.0	25 30	16 38	8 52	65.3	34.7	2.51	3.85	3.22
9.3	3,120	2/32	do	1/28	do	2	8	120	52	62.0	18 20	16 07	2 13	87.9	12.1	3.38	3.85	3.22
9.1	3,120	2/32	do	1/30	do	2	12	120	52	178.0	81 20	46 17	35 03	56.9	43.1	2.19	3.85	3.22
9.3	3,120	2/32	do	1/28	do	2	4	120	52	86.0	35 40	22 22	13 18	62.7	37.3	2.41	3.85	3.22
8.6	2,880	2/32	do	1/30	do	1	4	120	52	124.5	44 10	32 22	11 48	73.3	26.7	2.82	3.85	3.1
9.1	3,120	2/32	do	1/30	do	2	12	120	52	96.6	35 40	25 06	10 34	70.4	29.6	2.71	3.85	3.22
9.3	3,120	2/32	do	1/28	do	2	4	120	52	109.0	45 50	28 20	17 30	61.8	38.2	2.38	3.85	3.22
8.6	2,880	2/32	do	1/30	do	1	4	120	53	56.0	19 00	14 50	4 10	78.1	21.9	2.95	3.77	3.0
8.5	3,504	2/40	do	1/30	do	2	4	120	53	115.0	45 50	30 29	15 21	66.5	33.5	2.51	3.77	3.22
9.2	3,120	2/32	do	1/30	do	2	8	120	53	93.5	45 50	24 47	21 03	54.1	45.9	2.04	3.77	3.22

WOOLEN GOODS.

FANCY OVERCOATINGS AND CLOAKINGS.

MALE WEAVERS.

27.0	1,472	1¼	Woolen	1¼	Woolen	4	10	94	25	85½	26 00	13 38	12 22	52.5	47.5	3.29	6.27	5.225
28.0	1,512	1¼	do	1¼	do	4	10	94	25	153¾	35 00	24 29	10 31	70.0	30.0	4.39	6.27	5.225
27.0	1,472	1¼	do	1¼	do	4	10	94	25	56½	13 00	9 01	3 59	69.4	30.6	4.35	6.27	5.225
28.4	1,512	1¼	do	1¼	do	5	10	94	25	158¼	41 30	25 17	16 13	60.9	39.1	3.82	6.27	5.225
26.0	1,472	1¼	do	1¼	do	4	18	94	25	116¾	24 00	18 38	5 22	77.6	22.4	4.86	6.27	5.225
27.0	1,472	1¼	do	1¼	do	4	18	94	25	109½	26 00	17 28	8 32	67.2	32.8	4.21	6.27	5.225
28.8	1,760	1¼	do	1¼	do	4	12	94	26	56¾	15 30	9 23	6 07	60.5	39.5	3.65	6.03	5.346
28.6	1,760	1¼	do	1¼	do	4	12	94	26	173	39 30	28 43	10 47	72.7	27.3	4.38	6.03	5.346
28.5	1,760	1¼	do	1¼	do	4	12	94	26	149½	38 30	24 46	13 44	64.3	35.7	3.87	6.03	5.346
29.0	1,760	1¼	do	1¼	do	4	12	94	26	68½	28 00	11 22	16 38	40.6	59.4	2.45	6.03	5.346
29.0	1,760	1¼	do	1¼	do	4	12	94	26	149¼	53 00	24 46	28 14	46.7	53.3	2.82	6.03	5.346
29.0	1,760	1¼	do	1¼	do	4	12	94	26	134¾	36 00	22 22	13 38	62.1	37.9	3.74	6.03	5.346
28.6	1,760	1¼	do	1¼	do	4	12	94	26	147¾	40 30	24 31	15 59	60.5	39.5	3.65	6.03	5.346
29.5	1,760	1¼	do	1¼	do	4	12	94	26	110¾	36 00	18 23	17 37	51.1	48.9	3.08	6.03	5.346
29.2	1,760	1¼	do	1¼	do	4	12	94	26	143	41 30	23 44	17 46	57.2	42.8	3.45	6.03	5.346
29.0	1,760	1¼	do	1¼	do	4	12	94	26	117	44 30	19 25	25 05	43.6	56.4	2.63	6.03	5.346
28.4	1,760	1¼	do	1¼	do	4	12	94	26	118	37 00	19 35	17 25	52.9	47.1	3.19	6.03	5.346
29.4	1,760	1¼	do	1¼	do	4	12	94	26	110½	40 30	18 20	22 10	45.3	54.7	2.73	6.03	5.346
29.0	1,760	1¼	do	1¼	do	4	12	94	26	55	21 30	9 08	12 22	42.5	57.5	2.56	6.03	5.346
29.0	1,760	1¼	do	1¼	do	4	12	94	26	112	36 30	18 35	17 55	50.9	49.1	3.07	6.03	5.346
29.4	1,760	1¼	do	1¼	do	4	12	94	26	125	33 30	20 44	12 46	61.9	38.1	3.73	6.03	5.346
29.7	1,760	1¼	do	1¼	do	4	12	94	26	170	49 30	28 13	21 17	57.0	43.0	3.43	6.03	5.346
29.2	1,760	1¼	do	1¼	do	4	12	94	26	135¾	41 30	22 32	18 58	54.3	45.7	3.27	6.03	5.346
29.4	1,760	1¼	do	1¼	do	4	12	94	26	82½	31 30	13 41	17 49	43.5	56.5	2.62	6.03	5.346
29.0	1,760	1¼	do	1¼	do	4	12	94	26	115¾	28 30	19 13	9 17	67.4	32.6	4.06	6.03	5.346
29.0	1,760	1¼	do	1¼	do	4	12	94	26	111	36 30	18 25	18 05	50.5	49.5	3.04	6.03	5.346
29.5	1,760	1¼	do	1¼	do	4	12	94	26	106¼	44 30	17 38	26 52	39.6	60.4	2.39	6.03	5.346
28.7	1,760	1¼	do	1¼	do	4	12	94	26	56	25 00	9 17	15 43	37.2	62.8	2.24	6.03	5.346
29.7	1,760	1¼	do	1¼	do	4	12	94	26	54½	17 00	9 02	7 58	53.2	46.8	3.21	6.03	5.346
29.0	1,760	1¼	do	1¼	do	4	12	95	26	107¾	38 00	17 39	20 21	46.4	53.6	2.83	6.09	5.346
29.6	1,760	1¼	do	1¼	do	4	12	94	26	138½	36 30	22 59	13 31	63.0	37.0	3.79	6.03	5.346
29.4	1,760	1¼	do	1¼	do	4	12	94	26	42	11 00	6 58	4 02	63.4	36.6	3.82	6.03	5.346
29.4	1,760	1¼	do	1¼	do	4	12	94	26	99	35 00	16 26	18 34	46.9	53.1	2.83	6.03	5.346
29.5	1,760	1¼	do	1¼	do	4	12	94	26	123	35 30	20 25	15 05	57.5	42.5	3.46	6.03	5.346
29.5	1,760	1¼	do	1¼	do	4	12	94	26	138½	45 00	22 59	22 01	51.1	48.9	3.08	6.03	5.346
29.4	1,760	1¼	do	1¼	do	4	12	94	26	131¾	36 30	21 47	14 43	59.7	40.3	3.60	6.03	5.346
29.4	1,760	1¼	do	1¼	do	4	12	92	26	34	8 00	5 46	2 14	72.1	27.9	4.25	5.90	5.346
29.2	1,760	1¼	do	1¼	do	4	12	94	26	139	47 30	23 04	24 26	48.6	51.4	2.93	6.03	5.346
29.0	1,760	1¼	do	1¼	do	5	12	94	26	150	45 00	24 53	20 07	55.3	44.7	3.33	6.03	5.346
29.2	1,760	1¼	do	1¼	do	4	12	94	26	97	33 30	16 06	17 24	48.1	51.9	2.90	6.03	5.346
29.2	1,760	1¼	do	1¼	do	4	12	94	26	166½	56 30	27 38	28 52	48.9	51.1	2.95	6.03	5.346
29.6	1,760	1¼	do	1¼	do	4	12	94	26	111	42 00	18 25	23 35	43.9	56.1	2.64	6.03	5.346
29.5	1,760	1¼	do	1¼	do	4	12	94	26	127¾	43 30	21 12	22 18	48.7	51.3	2.94	6.03	5.346

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

FANCY OVERCOATINGS AND CLOAKINGS—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
29.2	1,760	1¼	Woolen	1¼	Woolen	4	12	94	26	118	45 00	19 35	25 25	43.5	56.5	2.62	6.03	5.346
26.3	1,472	1¼	do	1¼	do	5	18	94	26	76½	36 30	12 42	23 48	34.8	65.2	2.10	6.03	5.346
28.0	1,760	1¼	do	1¼	do	4	12	94	26	90	41 00	14 56	26 04	36.4	63.6	2.20	6.03	5.346
28.6	1,760	1¼	do	1¼	do	4	12	94	26	119¾	40 00	19 52	20 08	49.7	50.3	2.99	6.03	5.346
16.4	864	1/1½	do	1/1½	do	4	8	95	12	214¼	37 45	16 14	21 31	43.0	57.0	5.68	13.19	2.7
13.9	960	1/1½	do	1/1½	do	4	10	95	16	227	44 00	22 56	21 04	52.1	47.9	5.16	9.90	3.2
12.1	864	1/1½	do	1/1½	do	4	8	95	16	51	9 00	5 49	3 11	64.6	35.4	6.39	9.90	3.2
14.7	960	1/1½	do	1/1½	do	4	8	96	16	55¼	30 30	5 35	24 55	18.3	81.7	1.81	9.90	3.2
14.7	960	1/1½	do	1/1½	do	4	18	95	16	208¾	44 30	21 05	23 25	47.4	52.6	4.69	9.90	3.2
14.7	960	1/1½	do	1/1½	do	4	18	95	16	298	50 10	30 07	20 03	60.0	40.0	5.99	9.90	3.2
13.9	960	1/1½	do	1/1½	do	4	10	95	16	222½	43 40	22 26	21 14	51.4	48.6	5.09	9.90	3.2
13.9	960	1/1½	do	1/1½	do	4	10	95	16	203	36 30	20 31	15 59	56.2	43.8	5.56	9.90	3.2
13.9	960	1/1½	do	1/1½	do	4	10	95	16	251¾	28 00	25 26	2 34	90.8	9.2	8.99	9.90	3.2
14.4	960	1/1½	do	1/1½	do	4	16	96	16	224¼	37 30	22 40	14 50	60.4	39.6	5.98	9.90	3.2
14.7	960	1/1½	do	1/1½	do	4	18	95	16	168¼	47 50	17 02	30 48	35.7	64.3	3.52	9.90	3.2
21.3	1,144	1/1½	do	1/1½	do	3	10	95	20	144½	33 00	18 17	14 43	55.4	44.6	4.39	7.92	4.0
21.3	1,144	1/1½	do	1/1½	do	3	10	96	20	200½	33 00	25 18	7 42	76.7	23.3	6.07	7.92	4.0
21.3	1,144	1/1½	do	1/1½	do	3	10	96	20	115½	23 30	14 35	8 55	62.1	37.9	4.91	7.92	4.0
21.3	1,144	1/1½	do	1/1½	do	3	10	95	20	88¾	26 30	11 13	15 17	42.3	57.7	3.35	7.92	4.0
21.3	1,144	1/1½	do	1/1½	do	3	10	96	20	99½	14 10	12 32	1 38	88.5	11.5	7.01	7.92	4.0
21.3	1,144	1/1½	do	1/1½	do	3	10	95	20	221½	51 30	27 59	23 31	54.3	45.7	4.30	7.92	4.0
21.3	1,144	1/1½	do	1/1½	do	3	10	95	20	211	51 30	26 39	24 51	51.8	48.2	4.10	7.92	4.0
21.3	1,144	1/1½	do	1/1½	do	3	10	95	20	217	51 30	27 25	24 05	53.2	46.8	4.21	7.92	4.0
21.3	1,144	1/1½	do	1/1½	do	3	10	95	20	56¼	15 20	7 08	8 12	46.5	53.5	3.68	7.92	4.0
21.3	1,144	1/1½	do	1/1½	do	3	10	95	20	57¾	36 20	7 18	29 02	20.1	79.9	1.59	7.92	4.0
21.9	1,152	1/1½	do	1/1½	do	4	4	95	20	238	40 30	30 04	16 26	64.7	35.3	5.12	7.92	4.0
21.9	1,152	1/1½	do	1/1½	do	4	4	95	20	166	35 45	20 58	14 47	56.0	44.0	4.64	7.92	4.0

21.9	1,152	1/1½	do.	1/1½	do.	4	4	95	20	230½	51 30	29 05	22 25	56.5	43.5	4.47	7.92	4.0
21.9	1,152	1/1½	do.	1/1½	do.	4	4	95	20	115	22 20	14 32	7 48	65.1	34.9	5.15	7.92	4.0
21.3	1,144	1/1½	do.	1/1½	do.	3	10	95	20	194½	50 30	24 34	25 56	48.6	51.4	3.85	7.92	4.0
21.3	1,144	1/1½	do.	1/1½	do.	3	10	95	20	286½	51 30	36 11	15 19	70.3	29.7	5.56	7.92	4.0
21.9	1,152	1/1½	do.	1/1½	do.	4	4	95	20	168½	27 20	21 17	6 03	77.5	22.5	6.16	7.92	4.0
21.9	1,152	1/1½	do.	1/1½	do.	4	4	95	20	225½	47 30	28 25	19 05	59.8	40.2	4.74	7.92	4.0
27.5	3,520	1/1½	do.	1/1½	do.	4	8	95	40	116	51 00	29 19	21 41	57.2	42.8	2.27	3.96	8.0
27.5	3,520	1/1½	do.	1/1½	do.	4	8	95	40	114¾	51 30	28 59	22 31	55.5	44.5	2.23	3.96	8.0
27.5	3,520	1/1½	do.	1½	do.	4	8	95	40	23	10 10	5 49	4 21	57.2	42.8	2.26	3.96	8.0
22.5	1,192	1½	do.	1½	do.	4	8	94	24	51	23 40	7 49	15 51	32.99	67.01	2.15	6.53	5.356
22.5	1,192	1½	do.	1½	do.	5	8	94	24	132	42 30	20 13	22 17	47.58	52.42	3.11	6.53	5.856
22.5	1,192	1½	do.	1½	do.	3	12	94	24	126½	42 30	19 20	23 10	45.51	54.49	2.97	6.53	5.356
22.5	1,192	1½	do.	1½	do.	5	16	94	24	111	21 50	17 00	4 50	77.86	22.14	5.08	6.53	5.856
22.5	1,192	1½	do.	1½	do.	5	8	94	24	216½	42 30	33 08	9 22	77.95	22.05	5.09	6.53	5.856
24.0	1,192	1½	do.	1½	do.	5	8	105	24	150½	43 20	20 38	22 42	47.63	52.37	3.47	7.29	4.856
24.4	1,192	1½	do.	1½	do.	5	8	105	24	157¾	43 20	21 38	21 42	49.92	50.08	3.64	7.29	4.856
24.4	1,192	1½	do.	1½	do.	5	8	105	24	226¾	43 20	31 06	12 14	71.77	28.23	5.23	7.29	4.856
24.4	1,192	1½	do.	1½	do.	4	8	105	24	151	29 30	20 43	8 47	70.20	29.80	5.12	7.29	4.856
23.8	1,192	1½	do.	1½	do.	5	8	105	24	154½	43 20	21 11	22 09	48.90	51.10	3.57	7.29	4.856
23.6	1,576	1½	do.	1½	do.	5	8	105	24	140½	28 50	19 16	9 34	66.83	33.17	4.87	7.29	4.856
22.4	1,576	1½	do.	1½	do.	5	8	105	24	164	37 00	22 29	14 31	60.78	39.22	4.43	7.29	4.856
23.4	1,192	1½	do.	1½	do.	5	8	105	24	180¾	43 20	24 47	18 33	57.21	42.79	4.17	7.29	4.856
22.5	1,192	1½	do.	1½	do.	3	8	94	24	144½	42 30	22 08	20 22	52.09	47.91	3.40	6.53	5.356
23.1	1,192	1½	do.	1½	do.	3	10	94	24	20	5 00	3 04	1 56	61.20	38.80	4.00	6.53	5.356
22.5	1,192	1½	do.	1½	do.	3	8	94	24	94½	34 40	14 26	20 14	41.65	58.35	2.72	6.53	5.356
22.5	1,192	1½	do.	1½	do.	3	12	94	24	106	36 40	16 14	20 26	44.29	55.71	2.89	6.53	5.356
22.5	1,192	1½	do.	1½	do.	3	8	94	24	29¾	9 00	4 34	4 26	50.67	49.33	3.31	6.53	5.356
22.5	1,192	1½	do.	1½	do.	4	12	94	24	69¾	30 40	10 41	19 59	34.86	65.14	2.27	6.53	5.356
22.5	1,192	1½	do.	1½	do.	5	8	94	24	137	42 30	20 59	21 31	49.39	50.61	3.22	6.53	5,856
22.5	1,192	1½	do.	1½	do.	3	12	94	24	38	14 50	5 49	9 01	39.24	60.76	2.56	6.53	5.856
22.5	1,192	1½	do.	1½	do.	4	10	94	24	135	31 30	20 41	10 49	65.65	34.35	4.29	6.53	5.356
21.5	1,576	1½	do.	1½	do.	5	16	94	24	117	42 30	17 55	24 35	42.16	57.84	2.75	6.53	5.856
22.5	1,192	1½	do.	1½	do.	5	8	94	24	77	27 50	11 48	16 02	42.40	57.60	2.77	6.53	5.856
22.5	1,192	1½	do.	1½	do.	5	8	94	24	164	42 30	25 07	17 23	59.11	40.89	3.86	6.53	5.856
22.5	1,192	1½	do.	1½	do.	3	12	94	24	139¾	42 30	21 25	21 05	50.38	49.62	3.29	6.53	5.356
22.5	1,192	1½	do.	1½	do.	5	8	94	24	76¾	32 50	11 46	21 04	35.82	64.18	2.34	6.53	5.856
21.5	1,576	1½	do.	1½	do.	5	16	94	24	155½	42 30	23 49	18 41	56.05	43.95	3.66	6.53	5.856
21.5	1,576	1½	do.	1½	do.	5	8	94	24	145¾	42 30	22 20	20 10	52.54	47.46	3.43	6.53	5.856
24.1	1,192	1½	do.	1½	do.	4	10	94	24	85½	28 50	13 06	15 44	45.43	54.57	2.97	6.53	5.356
22.5	1,192	1½	do.	1½	do.	5	8	94	24	26	8 00	3 59	4 01	49.75	50.25	3.25	6.53	5.856
25.1	1,576	1½	do.	1½	do.	5	12	94	24	201	42 30	30 47	11 43	72.45	27.55	4.73	6.53	5.856
22.5	1,192	1½	do.	1½	do.	3	10	94	24	21	7 00	3 13	3 47	15.23	84.77	3.00	6.53	5.356
22.5	1,192	1½	do.	1½	do.	5	8	94	24	177	42 30	27 11	15 19	63.96	36.04	4.17	6.53	5.856
22.5	1,192	1½	do.	1½	do.	3	12	94	24	70	31 40	10 43	20 57	33.84	66.16	2.21	6.53	5.356
25.0	1,192	1½	do.	1½	do.	5	8	94	24	129½	32 30	19 50	12 40	61.05	38.95	3.98	6.53	4.856
24.3	1,192	1½	do.	1½	do.	5	8	94	24	144½	34 40	22 08	12 32	63.86	36.14	4.17	6.53	4.856
22.4	1,576	1½	do.	1½	do.	5	8	94	24	108	43 20	16.32	26 48	38.17	61.83	2.49	6.53	4.856
23.5	1,192	1½	do.	1½	do.	5	8	94	24	81	27 40	12 25	15 15	44.85	55.15	2.93	6.53	4.856
24.0	1,576	1½	do.	1½	do.	5	16	94	24	118	36 30	18 05	18 25	49.53	50.47	3.23	6.53	4.856
24.6	1,192	1½	do.	1½	do.	5	8	94	24	140	43 20	21 27	21 53	49.50	50.50	3.23	6.53	4.856
24.3	1,192	1½	do.	1½	do.	5	8	94	24	125	34 30	19 09	15 21	55.51	44.49	3.62	6.53	4.856
24.3	1,192	1½	do.	1½	do.	5	8	94	24	114½	43 20	17 32	25 48	40.48	59.52	2.64	6.53	4.856
24.0	1,192	1½	do.	1½	do.	5	8	94	24	60	19 50	9 11	10 39	46.34	53.66	3.03	6.53	4.856

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

FANCY OVERCOATINGS AND CLOAKINGS—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time— Loom was producing.	Actual time— Lost in stoppages.	Per cent of total time— Loom was producing.	Per cent of total time— Lost in stoppages.	Yards woven per hour— Of total time.	Yards woven per hour— Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
22.4	1,576	1½	Woolen	1¼	Woolen	5	8	94	24	150½	43 20	23 04	20 16	53.22	46.78	3.46	6.53	4.856
26.0	1,192	1½	do	1¼	do	5	8	94	24	100	36 30	15 19	20 11	43.15	56.85	2.82	6.53	4.856
24.5	1,192	1½	do	1¼	do	5	8	94	24	157½	43 20	24 08	19 12	55.69	44.31	3.63	6.53	4.856
23.2	980	1	do	⅞	do	5	8	94	16	97½	18 00	9 58	8 02	55.83	44.67	5.42	9.79	4.404
22.9	980	1	do	⅞	do	5	22	94	16	208	37 30	21 14	16 16	56.64	43.36	5.55	9.79	4.404
23.0	980	1	do	⅞	do	5	22	94	16	217½	43 20	22 13	21 07	51.25	48.75	5.02	9.79	4.404
22.2	980	1	do	⅞	do	5	22	94	16	166	40 30	16 57	23 33	41.85	58.15	4.10	9.79	4.404
22.2	980	1	do	⅞	do	5	22	94	16	171	43 20	17 28	25 52	40.29	59.71	3.95	9.79	4.404
23.1	980	1	do	⅞	do	5	22	94	16	220	41 30	22 28	19 02	54 14	45.86	5.30	9.79	4.404
22.6	980	1	do	⅞	do	5	22	94	16	217	32 30	22 10	10 20	68.18	31.82	6.68	9.79	4.404
24.0	980	1	do	⅞	do	5	22	94	16	227½	39 40	23 14	16 26	58.56	41.44	5.74	9.79	4.404
24.0	980	1	do	⅞	do	5	22	94	16	254	39 30	25 56	13 34	65.66	34.34	6.43	9.79	4.404
24.2	980	1	do	⅞	do	3	8	94	16	115	31 40	11 45	19 55	37.05	62.95	3.63	9.79	4.404
24.0	960	1	do	⅞	do	3	22	94	16	174	42 30	17 46	24 44	41.80	58.20	4.09	9.79	4.404
24.0	980	1	do	⅞	do	5	22	94	16	176½	39 30	18 01	21 29	45.59	54.41	4.47	9.79	4.404
24.0	980	1	do	⅞	do	5	22	94	16	241½	40 40	24 40	16 00	60.66	39.34	5.94	9.79	4.404
23.6	980	1	do	⅞	do	5	22	94	16	271	42 50	27 46	15 04	64.83	35.17	6.32	9.79	3.904
23.7	980	1	do	⅞	do	4	8	94	16	138¼	27 50	14 07	13 43	50.72	49.28	4.96	9.79	4.404
24.0	980	1	do	⅞	do	5	22	94	16	170	33 40	17 22	16 18	51.58	48.42	5.05	9.79	4.404
24.0	960	1	do	⅞	do	5	22	94	16	187	32 40	19 05	13 35	58.42	41.58	5.74	9.79	4.404
24.2	960	1	do	⅞	do	5	22	94	16	209	42 30	21 20	21 10	50.19	49.81	4.92	9.79	4.404
24.0	960	⅞	do	⅞	do	5	8	94	16	82	19 50	8 23	11 27	42.27	57.73	4.12	9.79	4.404
24.0	960	1	do	⅞	do	5	8	94	16	184¼	42 30	18 49	23 41	44.28	55.72	4.34	9.79	4.404
25.1	980	1	do	⅞	do	4	8	94	16	154¼	29 00	15 45	13 15	54.31	45.69	5.33	9.79	3.904
24.0	980	1	do	⅞	do	5	22	94	16	165¼	25 50	16 53	8 57	61.48	38.52	6.40	9.79	4.404
24.1	980	1	do	⅞	do	4	8	94	16	206	35 00	21 02	13 58	60.11	39.89	5.89	9.79	3.908
24.0	980	1	do	⅞	do	4	8	94	16	115¼	20 50	11 46	9 04	56.50	43.50	5.53	9.79	3.908
24.0	960	1	do	⅞	do	4	8	94	16	55½	10 50	5 40	5 10	52.34	47.66	5.12	9.79	3.908

24.0	980	1	.....do.........	¾	.....do.........	4	8	94	16	53½	10 00	5 28	4 32	54.60	45.40	5.35	9.79	3.908
24.0	980	1	.....do.........	¾	.....do.........	4	8	94	16	45	10 50	4 36	6 14	42.46	57.54	4.15	9.79	3.908
24.0	980	1	.....do.........	¾	.....do.........	4	8	94	16	57	20 50	5 49	15 01	27.94	72.06	2.74	9.79	3.908
23.3	980	1	.....do.........	¾	.....do.........	4	8	94	16	90	22 50	9 11	13 39	40.25	59.75	3.94	9.79	3.904
24.0	980	1	.....do.........	¾	.....do.........	4	8	94	16	136½	25 40	13 55	11 45	54.19	45.81	5.31	9.79	3.904
24.0	980	1	.....do.........	¾	.....do.........	5	22	94	16	189½	31 40	19 21	12 19	61.10	38.90	5.98	9.79	4.404
24.0	980	1	.....do.........	¾	.....do.........	5	22	94	16	211	35 40	21 33	14 07	60.42	39.58	5.92	9.79	4.404
24.0	980	1	.....do.........	¾	.....do.........	5	22	94	16	190	42 30	19 24	23 06	45.65	54.35	4.47	9.79	4.404
24.2	980	1	.....do.........	¾	.....do.........	5	8	94	16	158¾	27 40	16 13	11 27	58.59	41.41	5 74	9.79	4.404
23.0	980	1	.....do.........	¾	.....do.........	5	22	94	16	109¾	20 50	11 11	9 39	53.66	46.34	5.26	9.79	4.404
24.0	980	1	.....do.........	¾	.....do.........	4	8	94	16	65	10 50	6 38	4 12	68.87	31.13	6.00	9.79	3.904
24.0	980	1	.....do.........	¾	.....do.........	5	22	94	16	106	20 50	10 50	10 00	51.98	48.02	5.09	9.79	4.404
24.0	980	1	.....do.........	¾	.....do.........	5	22	94	16	147½	28 50	15 02	13 48	52.16	47.84	5.11	9.79	4.404
24.2	980	1	.....do.........	¾	.....do.........	5	8	94	16	131¾	28 10	13 28	14 42	47.79	52.21	4.68	9.79	4.404
23.7	980	1	.....do.........	¾	.....do.........	4	8	94	16	141¾	36 30	14 29	22 01	39.67	60.33	3.88	9.79	3.904
24.0	980	1	.....do.........	¾	.....do.........	4	8	94	16	141	29 40	14 24	15 16	48.54	51.46	4.75	9.79	3.198
22.5	980	1	.....do.........	¾	.....do.........	4	8	94	18	69¾	13 00	8 01	4 59	61.62	38.38	5.37	8.70	4.267
22.6	980	1	.....do.........	¾	.....do.........	5	22	94	18	116¼	29 40	13 22	16 18	45.03	54.97	3.92	8.70	4.767
22.6	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	70	18 50	8 56	9 54	47.47	52.53	3.72	7.83	4.13
22.2	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	166	41 30	21 11	20 19	51.06	48.94	4.00	7.83	4.13
22.8	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	158½	33 40	20 14	13 26	60.06	39.94	4.71	7.83	4.13
22.7	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	116	27 40	14 49	12 51	53.53	46.47	4.19	7.83	4.13
22.0	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	111	37 30	14 10	23 20	37.79	62.21	2.96	7.83	4.13
21.5	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	134½	42 30	17 10	25 20	40.39	59.61	3.17	7.83	5.13
21.5	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	21	5 00	2 41	2 19	53.66	46.34	4.20	7.83	5.13
31.5	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	112½	31 40	14 22	17 18	45.35	54.65	3.55	7.83	5.13
21.8	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	145½	42 30	18 34	23 56	43.69	56.31	3.42	7.83	5.13
21.5	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	148½	41 30	18 58	22 32	45.69	54.31	3.58	7.83	5.13
21.0	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	140	21 40	17 52	3 48	64.61	35.39	6.46	7.83	5.13
21.5	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	20	221½	42 30	23 17	14 13	66.54	33.46	5.21	7.83	5.13
23.8	1,192	1¼	.....do.........	1¼	.....do.........	5	10	94	22	131	43 20	18 24	24 56	42.46	57.54	3.02	7.12	4.493
23.6	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	22	141	32 40	19 48	12 52	60.61	39.39	4.32	7.12	5.493
21.7	1,760	1¼	.....do.........	1¼	.....do.........	5	8	105	24	131¾	41 30	18 04	23 26	43.54	56.46	3.17	7.29	4.856
22.0	1,192	1¼	.....do.........	1¼	.....do.........	5	8	105	24	167½	34 40	22 58	11 42	66.26	33.74	4.83	7.29	4.856
21.8	1,576	1¼	.....do.........	1¼	.....do.........	5	8	105	24	114½	31 40	15 42	15 58	49.58	50.42	3.62	7.29	4.856
20.8	1,576	1¼	.....do.........	1¼	.....do.........	5	8	105	24	125¼	39 00	17 15	21 45	44.23	55.77	3.22	7.29	4.856
22.2	1,576	1¼	.....do.........	1¼	.....do.........	5	8	105	24	110	26 40	15 05	11 35	56.59	43.41	4.12	7.29	4.856
22.1	1,576	1¼	.....do.........	1¼	.....do.........	5	8	105	24	106	43 20	14 32	28 48	33.55	66.45	2.45	7.29	4.856
21.8	1,576	1¼	.....do.........	1¼	.....do.........	5	8	105	24	144¾	37 40	19 51	17 49	52.70	47.30	3.84	7.29	4.856
24.7	2 240	2¼	.....do.........	1¼	.....do.........	5	8	94	30	116½	42 30	22 19	20 11	52.49	47.51	2.74	5.20	6.445
27.4	4,568	1-2	.....do.........	4	.....do.........	5	18	94	46	68	31 40	19 58	11 42	63.05	36.95	2.15	3.40	9.349
25.2	3,568	4	.....do.........	4	.....do.........	5	20	94	46	78	27 50	22 54	4 56	82.28	17.72	2.80	3.41	9.349
28.2	3,568	4	.....do.........	4	.....do.........	5	18	94	48	42¼	20 50	12 56	7 54	62.11	37.89	2.03	3.26	9.712
25.0	4,060	4	.....do.........	4	.....do.........	4	14	94	62	25¾	10 50	10 11	39	94.06	5.94	2.38	2.53	5.73
28.7	1,192	1¼	.....do.........	1¼	.....do.........	5	12	94	24	98¼	21 50	15 05	6 45	69.12	30.88	4.51	6.53	4.856
24.5	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	24	71½	30 00	10 57	19 03	36.50	63.50	2.38	6.53	4.856
24.4	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	24	94¾	35 30	14 29	21 01	40.79	59.21	2.66	6.53	4.856
24.1	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	24	159	40 30	24 22	16 08	60.15	39.85	3.93	6.53	4.856
24.5	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	24	108	20 40	16 32	4 08	80.03	19.97	5.23	6.53	4.856
23.8	1,192	1¼	.....do	1¼	.....do.........	5	8	94	24	140	35 00	21 27	13 33	61.29	38.71	4.00	6.53	4.856
23.7	1,192	1¼	.....do.........	1¼	.....do.........	3	12	94	24	101¾	31 40	15 35	16 05	49.23	50.77	3.21	6.53	5.356
26.5	1,192	1¼	.....do.........	1¼	.....do.........	3	10	94	24	56¾	20 00	8 41	11 19	43.45	56.55	2.84	6.53	5.356
22.5	1,192	1¼	.....do.........	1¼	.....do.........	5	8	94	24	162¼	42 30	24 53	17 37	58.56	41.44	3.82	6.53	5.856

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

FANCY OVERCOATINGS AND CLOAKINGS—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
24.2	1,192	1⅜	Woolen	1¼	Woolen	3	10	94	24	75½	30 00	11 34	18 26	38.57	61.43	2.52	6.53	5.356
22.5	1,190	1⅜	do	1¼	do	5	8	94	24	103	31 40	15 47	15 53	49.83	50.17	3.25	6.53	5.856
22.5	1,192	1⅜	do	1¼	do	5	8	94	24	54¼	19 40	8 19	11 21	42.25	57.75	2.76	6.53	5.856
22.5	1,192	1⅜	do	1¼	do	3	8	94	24	76	22 50	11 38	11 12	50.98	49.02	3.33	6.53	5.358
22.5	1,192	1⅜	do	1¼	do	5	8	94	24	149¾	42 30	22 56	19 34	53.98	46.02	3.52	6.53	5.856
22.5	1,192	1⅜	do	1¼	do	5	8	94	24	37	7 00	5 40	1 20	81.00	19.00	5.29	6.53	5.856
22.5	1,192	1⅜	do	1¼	do	3	12	94	24	107½	31 40	16 28	15 12	52.01	47.99	3.39	6.53	5.356
21.5	1,576	1⅜	do	1½	do	5	16	94	24	148½	41 40	22 45	18 55	54.60	45.40	3.56	6.53	5.856
24.0	1,192	1⅜	do	1¼	do	3	8	94	24	118½	31 40	18 09	13 31	57.32	42.68	3.74	6.53	5.356
24.0	1,192	1⅜	do	1¼	do	5	8	105	24	144½	43 20	19 49	23 31	45.74	54.26	3.33	7.29	4.856
23.8	1,192	1⅜	do	1¼	do	5	8	105	24	126½	43 20	17 21	25 59	40.04	59.96	2.92	7.29	4.856
23.6	1,192	1⅜	do	1¼	do	5	8	105	24	168	43 20	23 02	20 18	53.17	46.83	3.88	7.29	4.856
23.2	1,192	1⅜	do	1¼	do	5	8	105	24	144	35 00	19 45	15 15	56.43	43.57	4.11	7.29	4.856
22.4	1,576	1⅜	do	1½	do	5	8	105	24	176¼	38 20	24 10	14 10	63.05	36.95	4.60	7.29	4.856
23.4	1,192	1⅜	do	1¼	do	5	8	105	24	149½	43 20	20 30	22 50	47.31	52.69	3.45	7.29	4.856
24.6	1,192	1⅜	do	1¼	do	4	8	105	24	155½	43 20	21 20	22 00	49.22	50.78	3.59	7.29	4.856
23.4	1,192	1⅜	do	1¼	do	5	8	105	24	202½	43 20	27 46	15 34	64.00	35.91	4.67	7.29	4.856
24.4	1,192	1⅜	do	1¼	do	5	8	105	24	176½	43 20	24 13	19 07	55.87	44.13	4.07	7.29	4.856
24.4	1,192	1⅜	do	1¼	do	5	8	105	24	110¾	43 20	15 11	28 09	35.05	64.95	2.56	7.29	4.856
23.8	1,192	1⅜	do	1¼	do	5	8	105	24	125½	30 00	17 13	12 47	57.37	42.63	4.18	7.29	4.856
27.2	2,940	3¼	do	1½	do	5	14	94	34	38½	20 50	8 22	12 28	40.13	59.87	5.02	7.83	7.171
28.2	2,940	3¼	do	1½	do	5	14	94	34	49	27 40	10 38	17 02	38.42	61.58	1.77	4.61	6.671
24.0	980	1	do	⅞	do	5	22	94	16	238½	42 30	24 21	18 09	56.85	43.15	5.61	9.79	4.404
23.1	980	1	do	⅞	do	5	22	94	16	131¾	24 00	13 28	10 32	56.08	43.92	5.49	9.79	4.404
24.0	1,384	1⅜	do	1¼	do	5	16	94	22	136	39 30	19 06	20 24	48.35	51.65	3.44	7.12	4.493
24.5	1,384	1⅜	do	1¼	do	5	16	94	22	175	34 40	24 35	10 05	70.87	29.13	5.05	7.12	4.493
25.4	1,384	1⅜	do	1¼	do	5	16	94	22	132	39 30	18 32	20 58	46.94	53.06	3.34	7.12	4.493

23.5	1,192	1¼	do	1½	do	5	8	94	22	57	18 50	8 00	10 50	42.48	57.52	3.03	7.12	4.493
25.7	1,384	1¼	do	1¼	do	5	16	94	22	33	12 50	4 38	8 12	36.08	63.92	2.57	7.12	4.493
24.9	1,384	1¼	do	1¼	do	3	16	94	22	94½	39 50	13 14	26 36	33.24	66.76	2.37	7.12	4.993
25.9	1,384	1¼	do	1¼	do	3	16	94	22	127	37 30	17 50	19 40	47.55	52.45	3.87	7.12	4.993
24.9	1,384	1¼	do	1¼	do	3	16	94	22	150¼	42 30	21 06	21 24	49.65	50.35	3.54	7.12	3.63
24.9	1,384	1¼	do	1¼	do	3	10	94	22	71¾	20 50	10 04	10 46	48.32	51.68	2.20	4.90	5.806
24.9	1,384	1¼	do	1¼	do	4	8	94	22	84½	24 40	11 52	12 48	36.01	63.99	3.43	7.12	4.993
24.9	1,384	1¼	do	1¼	do	4	8	94	22	90½	31 40	12 43	18 57	40.16	59.84	2.86	7.12	4.993
24.9	1,384	1¼	do	1¼	do	5	8	94	22	65	18 50	9 08	9 42	48.48	51.52	3.45	7.12	5.493
24.0	980	1	do	¼	do	4	8	94	22	127½	39 30	17 54	21 36	45.32	54.68	3.23	7.12	4.993
26.0	1,384	1¼	do	1¼	do	5	16	94	22	42	15 50	5 54	9 56	37.26	62.74	5.35	9.80	5.493
22.5	1,192	1¼	do	1¼	do	4	8	94	22	42½	10 50	5 58	4 52	55.11	44.89	3.92	7.12	4.993
24.9	1,884	1¼	do	1¼	do	5	8	94	22	47	15 00	6 36	8 24	44.00	56.00	3.16	7.12	5.493
24.4	1,384	1¼	do	1¼	do	5	16	94	22	56¾	14 50	7 58	6 52	53.73	46.27	3.83	7.12	5.493
24.9	1,384	1¼	do	1¼	do	5	16	94	22	76¾	12 50	10 47	2 03	84.00	16.00	5.98	7.12	5.493
24.9	1,384	1¼	do	1¼	do	5	8	94	22	114¼	31 40	16 07	15 33	50.87	49.13	2.62	7.12	5.856
24.8	1,384	1¼	do	1¼	do	6	8	105	22	137¼	36 00	17 15	18 45	47.92	52.08	3.81	7.95	4.993
24.4	1,384	1¼	do	1¼	do	5	8	105	22	150¼	43 20	18 53	24 27	43.59	56.41	3.47	7.95	4.993
24.6	1,384	1¼	do	1¼	do	5	16	105	22	142¼	38 00	17 55	20 05	47.13	52.87	3.75	7.95	4.493
24.9	1,384	1¼	do	1¼	do	5	16	94	22	67¾	34 40	9 31	25 09	27.43	72.57	1.95	7.12	5.493
29.4	1,384	1¼	do	1¼	do	5	8	94	22	61¼	16 50	8 36	8 14	51.09	48.91	3.64	7.12	4.404
24.9	1,384	1¼	do	1¼	do	3	16	94	22	102¼	20 50	14 22	6 28	68.93	31.07	4.91	7.12	4.993
25.4	1,884	1¼	do	1¼	do	3	10	94	22	63¼	20 50	8 53	11 57	42.62	57.38	3.04	7.12	4.993
25.5	1,384	1¼	do	1¼	do	4	16	105	22	166¼	43 20	20 58	22 22	48.37	51.63	3.85	7.95	3.993
24.6	1,384	1¼	do	1¼	do	5	16	105	22	176	41 30	22 42	18 48	54.70	45.30	4.24	7.95	4.493
24.6	1,384	1¼	do	1¼	do	5	16	105	22	185½	40 30	23 19	17 11	57.58	42.42	4.58	7.95	4.493
26.3	1,878	1¼	do	1¼	do	5	12	94	25	55	12 00	8 47	3 13	73.20	26.80	4.58	6.27	5.225
26.0	1,736	1¼	do	1¼	do	4	12	94	25	58	16 30	9 16	7 14	56.20	43.80	3.52	6.27	5.225
27.8	448 916 1,424	1-5 1-1¼ 1-3½	do	1-3½ 1-1¼	do	6	24	90	44	29¼	13 45	8 39	5 06	62.90	37.10	2.15	3.41	9.58
32.0	3,240	1/1½ 1/5	do	1/1½ 2/5	do	5	16	98	36	53½	17 00	11 47	5 13	69.40	30.60	3.15	4.54	6.0
37.0	2,800	1/1¾	do	1/1¾	do	6	10	92	42	125	52 20	34 14	18 06	65.40	34.60	2.39	3.65	7.69
36.0	2,800	1/1¾	do	1/1¾	do	6	10	92	42	136	58 00	37 15	20 45	64.20	35.80	2.34	3.65	7.69
36.2	2,800	1/1¾	do	1/1¾	do	4	10	92	42	75	52 20	20 32	31 48	39.20	60.80	1.43	3.65	7.69
37.0	2,800	1/1¾	do	1/1¾	do	6	10	95	42	127½	52 20	33 49	18 31	64.60	35.40	2.44	3.77	7.69
35.0	2,800	1/1¾	do	1/1¾	do	4	10	95	42	96½	52 20	25 36	26 44	48.90	51.10	1.84	3.77	7.69
37.0	2,800	1/1¾	do	1/1¾	do	4	10	90	42	138	50 20	38 38	11 52	76.80	23.20	2.74	3.57	7.69
36.0	2,800	1/1¾	do	1/1¾	do	6	10	95	42	146	52 20	36 59	15 21	39.60	60.40	2.79	3.77	7.69
36.0	2,880	1/1¾	do	1/1¾	do	4	10	95	42	115½	37 00	32 20	4 40	87.40	12.60	3.31	3.77	7.69
31.2	2,800	1/1¾	do	1/1¾	do	4	15	95	42	102	50 20	27 04	23 16	58.80	46.20	2.02	3.77	7.69
37.0	2,800	1/1¾	do	1/1¾	do	5	10	92	44	104	58 00	29 50	28 10	51.40	48.60	1.79	3.48	8.0
36.0	2,800	1/1¾	do	1/1¾	do	5	10	92	44	112	58 00	35 50	22 10	61.80	38.20	2.29	3.48	8.0
36.3	2,800	1/1¾	do	1/1¾	do	5	10	92	44	115	52 20	33 00	19 20	63.10	36.90	2.20	3.48	8.0
35.6	2,800	1/1¾	do	1/1¾	do	6	10	95	44	149½	58 00	41 33	16 17	71.60	28.40	2.58	3.60	8.0
23.9	1,144	1/1¼	do	1/1¼	do	2	4	110	20	287¼	61 30	31 22	30 08	51.00	49.00	4.67	9.17	3.4
23.6	1,444	1/1¼	do	1/1¼	do	2	4	110	22	315¼	61 30	37 53	23 37	61.60	38.40	5.16	8.33	3.4
23.0	1,144	1/1¼	do	1/1¼	do	2	4	110	22	252¼	54 00	30 16	23 44	56.10	43.90	4.67	8.33	3.4
22.6	1,152	1/1¼	do	1/1¼	do	2	4	110	22	327	47 30	39 14	8 16	82.60	17.40	6.68	8.33	3.4
24.0	1,144	1/1¼	do	1/1¼	do	2	4	110	22	361	61 30	43 19	18 11	70.40	29.60	5.87	8.33	3.4

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

FANCY OVERCOATINGS AND CLOAKINGS—Continued.

FEMALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
24.0	1,144	1/1¼	Woolen	1/1¼	Woolen	2	4	110	22	234¾	42 00	28 10	13 50	67.1	32.9	5.59	8.33	3.4
22.9	1,144	1/1¼	do	1/1¼	do	2	4	110	22	199	42 00	23 53	18 07	56.9	43.1	4.74	8.33	3.4
22.3	1,144	1/1¼	do	1/1¼	do	2	4	100	22	215¼	47 30	28 27	19 03	59.9	40.1	4.54	7.58	3.5
24.4	1,144	1/1¼	do	1/1¼	do	2	4	100	22	246	47 30	34 51	12 39	73.4	26.6	5.56	7.58	3.5
24.1	1,296	1/1¼	do	1/1¼	do	2	4	110	24	260¼	47 30	34 06	13 24	71.8	28.2	5.48	7.64	3.4
20.7	1,200	1/1 1/16	do	1-1[illegible]	do	4	8	98	22	125[illegible]	19 50	16 54	2 56	85.2	14.8	6.33	7.42	5.0
20.9	1,200	1/1 1/16	do	1-1[illegible]	do	4	8	96	22	44[illegible]	7 10	6 07	1 03	85.4	14.6	6.21	7.27	5.0
21.0	1,200	1/1 1/16	do	1-1 1/16	do	4	8	97	22	157[illegible]	31 26	21 24	10 01	68.1	31.9	5.01	7.35	5.0
20.7	1,200	1/1 1/16	do	1-1[illegible]	do	4	8	97	22	140[illegible]	22 30	19 07	3 23	85.0	15.0	6.24	7.35	5.0
27.7	2,592	1/1 1/16	do	1-1 1/16	do	4	8	97	24	57[illegible]	13 55	8 32	5 23	61.4	38.6	4.13	6.74	5.25
23.8	1,192	1¼	do	1¼	do	3	8	94	24	81[illegible]	42 30	12 31	29 59	29.46	70.54	1.92	6.53	5.356
22.5	1,192	1¼	do	1¼	do	3	12	94	24	110[illegible]	39 40	16 53	22 47	42.58	57.42	2.78	6.53	5.356
16.8	1,192	1¼	do	1¼	do	3	10	94	24	154[illegible]	35 30	23 38	11 52	66.56	33.44	4.35	6.53	5.356
22.5	1,192	1¼	do	1¼	do	5	8	94	24	145[illegible]	42 30	22 17	20 13	52.45	47.55	3.42	6.53	5.856
23.5	1,192	1¼	do	1¼	do	3	8	94	24	126[illegible]	42 30	19 25	23 05	45.69	54.31	2.98	6.53	5.356
23.7	1,192	1¼	do	1¼	do	5	8	94	24	126[illegible]	42.30	19 20	23 10	45.51	54.49	2.98	6.53	5.856
21.5	1,576	1¼	do	1¼	do	5	8	94	24	134[illegible]	40 40	20 38	20 02	50.75	49.25	3.30	6.53	5.856
22.5	1,192	1¼	do	1¼	do	5	12	94	24	51	16 50	7 49	9 01	46.40	53.60	4.57	7.93	5.856
22.5	1,192	1¼	do	1¼	do	5	8	94	24	72	31 00	11 02	19 58	35.58	64.42	2.32	6.53	5.856
22.5	1,192	1¼	do	1¼	do	5	8	94	24	38	10 00	5 49	4 11	58.20	41.80	3.80	6.53	5.856
22.5	1,192	1¼	do	1¼	do	3	8	94	24	165¼	37 30	25 19	12 11	67.49	32.51	4.41	6.53	5.356
24.3	1,192	1¼	do	1¼	do	3	12	94	24	65[illegible]	26 50	10 04	16 46	37.53	62.47	2.45	6.53	5.356
24.2	1,192	1¼	do	1¼	do	3	12	94	24	135	42 50	20 41	22 09	48.28	51.72	3.15	6.53	5.356
22.5	1,192	1¼	do	1¼	do	5	8	94	24	185[illegible]	42 30	28 28	14 02	66.96	33.04	4.37	6.53	5.856
22.5	1,800	1¼	do	1¼	do	5	8	94	24	77[illegible]	20 50	11 55	8 55	57.17	42.83	3.70	6.53	5.856
22.5	1,192	1¼	do	1¼	do	3	12	94	24	100[illegible]	42 30	15 22	27 08	36.14	63.86	2.36	6.53	5.356

21.5	1,576	1[illegible]	.....do..........	1[illegible]	.....do..........	5	12	94	24	72	18 00	11 02	6 58	61.28	38.72	4.00	6.53	5.856
22.5	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	24	143[illegible]	42 30	21 59	20 31	51.72	48.28	3.38	6.53	5.856
23.8	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	3	8	94	24	120[illegible]	42 30	18 25	24 05	43.34	56.66	2.83	6.53	5.856
22.5	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	24	137[illegible]	42 30	21 04	21 26	49.55	50.45	3.24	6.53	5.856
22.5	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	24	68	20 00	10 25	9 35	52.10	47.90	3.40	6.53	5.856
21.5	1,576	1[illegible]	.....do..........	1[illegible]	.....do..........	5	12	94	24	35	23 50	5 22	18 28	22.49	77.51	1.47	6.53	5.856
21.5	1,576	1[illegible]	.....do..........	1[illegible]	.....do..........	5	16	94	24	21	10 00	3 13	6 47	32.20	67.80	2.10	6.53	5.856
22.5	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	24	74	21 40	11 20	10 20	52.34	47.66	3.42	6.53	5.856
21.5	1,576	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	24	157[illegible]	41 30	24 08	17 22	58.14	41.86	3.80	6.53	5.456
24.6	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	3	12	94	24	123	42 30	18 50	23 40	44.33	55.67	2.89	6.53	5.356
22 5	1.192	1[illegible]	.....do..........	1[illegible]	.....do..........	4	8	94	24	128[illegible]	29 40	19 43	9 57	66.47	33.53	4.34	6.53	5.356
23.8	1.192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	105	24	117[illegible]	32 30	16 05	16 25	49.48	50.52	3.61	7.29	4.856
23.6	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	105	24	39	10 50	5 21	5 29	49.39	50.61	3.60	7.29	4.856
22.2	1,576	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	105	24	209	43 20	28 40	14 40	66.14	33.86	4.82	7.29	4.856
23.6	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	105	24	175[illegible]	43 20	24 04	19 16	55.55	44.45	4.05	7.29	4.856
24.0	1,197	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	105	24	139	42 00	19 04	22 56	45.38	54.62	3.31	7.29	4.856
27.2	2,940	3[illegible]	.....do..........	1[illegible]	.....do..........	5	12	94	34	20	9 50	4 20	5 30	44.14	55.86	2.03	4.61	7.171
26.9	2,940	3[illegible]	.....do..........	1[illegible]	.....do..........	5	14	94	34	120[illegible]	42 30	26 06	16 24	61.41	38.59	2.83	4.61	7.171
27.5	2,940	2[illegible]	.....do..........	1[illegible]	.....do..........	2	14	94	34	104	42 30	22 35	19 55	53.11	46.89	2.45	4.61	7.171
28.3	2,940	3[illegible]	.....do..........	1[illegible]	.....do..........	5	12	94	34	61[illegible]	36 40	13 21	23 19	36.41	63.59	1.68	4.61	7.171
27.2	2,940	2[illegible]	.....do..........	1[illegible]	.....do..........	5	12	94	34	110[illegible]	42 30	24 02	18 28	56.56	43.44	2.61	4.61	7.171
23.0	980	1	.....do..........	[illegible]	.....do..........	5	22	94	16	135[illegible]	31 40	13 50	17 50	43.71	56.29	4.28	9.79	4.404
22.8	980	1	.....do..........	[illegible]	.....do..........	5	22	94	16	183[illegible]	31 00	18 44	12 16	60.45	39.55	5.92	9.79	4.404
23.0	980	⅞	.....do..........	[illegible]	.....do..........	5	12	94	16	87	15 50	8 53	6 57	55.91	44.09	5.48	9.79	4.404
23.2	980	1	.....do..........	[illegible]	.....do..........	5	22	94	16	213	35 30	21 45	13 45	61.27	38.73	6.00	9.79	4.404
23.0	980	1	.....do..........	[illegible]	.....do..........	5	22	94	16	86[illegible]	21 40	8 50	12 50	40.75	59.25	3.99	9.79	4.404
22.4	980	⅞	.....do..........	[illegible]	.....do..........	5	8	94	16	137[illegible]	43 20	14 02	29 18	32.40	67.60	3.17	9.79	4.404
24.0	980	1	.....do..........	[illegible]	.....do..........	4	8	94	16	127	31 40	12 58	18 42	40.96	59.04	4.01	9.79	3.904
24.0	980	1	.....do..........	[illegible]	.....do..........	4	8	94	16	121	28 50	12 22	16 28	42.87	57.13	4.20	9.79	3.904
24.0	980	1	.....do..........	[illegible]	.....do..........	4	8	94	16	169	32 10	17 16	14 54	53.66	46.34	5.25	9.79	3.904
25.0	980	1	.....do..........	[illegible]	.....do..........	4	8	94	16	70	11 50	7 09	4.41	60.42	39.58	5.92	9.79	3.904
24.2	980	1	.....do.......	[illegible]	.....do..........	4	8	94	16	120	38 40	12 16	26 24	31.71	68.29	3.10	9.79	4.404
24.0	980	1	.....do..........	[illegible]	.....do..........	4	8	94	16	71	21 40	7 15	14 25	33.46	66.54	3.28	9.79	3.904
24.0	980	1	.....do..........	[illegible]	.....do..........	4	8	94	16	115[illegible]	30 40	11 46	18 54	38.38	61.62	4.97	9.79	3.908
24.0	980	1	.....do..........	[illegible]	.....do..........	4	8	94	16	48[illegible]	10 50	4 59	5 51	45.97	54.03	4.50	9.79	3.908
24.0	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	20	141	28 50	18 00	10 50	62.43	37.57	4.89	7.83	4.13
23.0	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	20	117	40 30	14 56	25 34	36.89	63.11	2.89	7.83	4.13
23.2	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	20	162	38 30	20 41	17 49	53.71	46.29	4.21	7.83	4.13
21.5	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	20	60[illegible]	15 50	7 41	8 09	48.57	51.43	3.81	7.83	5.13
21.5	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	20	122[illegible]	42 30	15 37	26 53	36.73	63.27	2.88	7.83	5.13
21.5	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	20	100[illegible]	33 40	12 47	20 53	37.99	62.01	2.98	7.83	5.13
21.5	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	20	116[illegible]	27 30	14 50	12 40	53.96	46.04	4.23	7.83	5.13
21.5	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	22	97[illegible]	24 50	13 44	11 06	55.29	44.71	3.94	7.12	5.493
23.0	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	94	24	113	31 00	17 19	13 41	55.84	44.16	4.23	6.53	4.856
21.8	1,576	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	105	24	166[illegible]	36 30	22 50	13 40	62.55	37.45	4.56	7.29	4.856
23.4	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	105	24	191[illegible]	43 20	26 18	17 02	60.69	39.31	4.43	7.29	4.856
22.1	1,756	1[illegible]	.....do..........	1[illegible]	.....do..........	5	8	105	24	158[illegible]	32 30	21 44	10 46	66.89	33.11	4.88	7.29	4.856
16.8	1,192	1[illegible]	.....do..........	1[illegible]	.....do..........	5	10	94	46	20	7 00	5 52	1 08	83.86	16.14	2.86	3.41	5.356
13.2	864	1/1[illegible]	.....do..........	1/1[illegible]	.....do..........	3	8	95	16	210[illegible]	35 40	21 18	14 22	59.7	40.3	5.91	9.90	3.2
13.2	864	1/1[illegible]	.....do..........	1/1[illegible]	.....do..........	3	8	95	16	286	45 50	28 54	16 56	61.3	38.7	6.24	9.90	3.2
13.9	960	1/1[illegible]	.....do..........	1/1[illegible]	.....do..........	4	10	95	16	275	44 10	27 47	16 23	62.9	37.1	6.23	9.90	3.2
21.3	1,144	1/1[illegible]	.....do..........	1/1[illegible]	.....do..........	3	10	95	20	234[illegible]	45 50	29 39	16 11	64.7	35.3	5.12	7.92	4.0

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

FANCY OVERCOATINGS AND CLOAKINGS—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.						
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time— Loom was producing.	Actual time— Lost in stoppages.	Per cent of total time— Loom was producing.	Per cent of total time— Lost in stoppages.	Yards woven per hour— Of total time.	Yards woven per hour— Of actual producing time.	Piece price per yard.
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
21.3	1,144	1/1½	Woolen	1/1½	Woolen	3	10	95	20	174½	45 10	20 02	25 08	44.4	55.6	3.86	7.92	4.0
22.1	1,152	1/1½	do	1/1½	do	3	4	95	20	204½	45 50	25 52	19 58	66.4	43.6	4.47	7.92	4.0
21.9	1,152	1/1½	do	1/1½	do	4	4	95	20	190½	45 50	24 05	21 45	52.5	47.5	4.16	7.92	4.0
21.9	1,152	1/1½	do	1/1½	do	4	4	95	20	178½	45 50	22 31	23 19	49.1	50.9	3.89	7.92	4.0
19.3	3,024	1-3½	do	1-3½	do	5	10	100	44	55	16 10	11 37	4 33	71.9	28.1	3.40	3.79	8.0
37.0	2,800	1/1¾	do	1/1¾	do	4	8	92	42	133	52 20	36 26	15 54	59.6	40.4	2.54	3.65	7.69
36.2	1,440	1/1¾	do	1/1¾	do	4	10	95	42	121	58 00	31 03	26 57	53.5	46.5	2.09	3.77	7.69
37.4	2,800	1/1¾	do	1/1¾	do	4	10	95	42	93	50 20	24 40	25 40	47.1	52.9	1.78	3.77	7.69
27.3	1,472	1-1½	do	1-1½	do	4	10	94	25	100¾	26 00	16 05	9 55	61.8	38.2	3.88	6.27	5.225
26.3	1,472	1-1½	do	1-1½	do	4	18	94	25	58	23 30	9 16	14 14	39.4	60.6	2.47	6.27	5.225
29.6	1,760	1-1½	do	1-1½	do	4	12	94	26	112	36 30	18 35	17 55	50.9	49.1	3.07	6.08	5.346
29.8	1,760	1-1½	do	1-1½	do	4	12	94	26	54	15 30	8 58	6 32	57.8	42.2	3.48	6.08	5.346
29.8	1,760	1-1½	do	1-1½	do	4	12	94	26	54	17 30	8 58	8 32	51.2	48.8	3.09	6.08	5.346
29.0	1,760	1-1½	do	1-1½	do	4	12	94	26	160½	40 30	26 35	13 55	65.7	34.3	3.96	6.08	5.346
29.8	1,760	1-1½	do	1-1½	do	4	12	94	26	68	27 00	11 17	15 43	41.8	58.2	2.52	6.08	5.346
29.2	1,760	1-1½	do	1-1½	do	4	12	94	26	54½	23 00	9 02	13 58	39.3	60.7	2.37	6.08	5.346
27.5	1,965	1-1⅝	do	1-1⅝	do	4	12	94	30	19½	4 30	3 44	46	82.9	17.1	4.33	5.22	5.59
27.8	1,952	1-1⅝	do	1-1⅝	do	5	12	94	30	113½	37 30	21 44	15 46	57.9	42.1	3.08	5.22	5.59
28.4	1,986	1-1⅝	do	1-1⅝	do	4	16	94	30	26½	10 00	5 04	4 56	50.7	49.3	2.65	5.22	5.59
23.9	2,880	2½	do	2½	do	3	10	94	20	20½	8 00	2 37	5 23	32.75	67.25	2.54	7.83	5.08
22.5	1,192	1¾	do	1¾	do	3	10	94	20	160½	38 50	21 04	17 46	54.26	45.74	4.25	7.83	3.68
24.1	1,192	1¾	do	1¾	do	4	8	94	20	48	11 50	5 29	6 21	46.40	53.60	3.68	7.83	5.356
26.6	1,384	1¾	do	1¾	do	5	16	94	22	99	36 50	13 54	22 56	37.74	62.26	2.69	7.12	4.408

25.0	1,384	1⅛	.....do.........	1¼	.....do.........	5	16	94	22	77	21 40	10 49	10 51	49.89	50.11	3.55	7.12	4.493
24.8	1,384	1⅛	.....do.........	1¼	.....do.........	5	16	94	22	96	32 30	13 29	19 01	41.48	58.52	2.95	7.12	4.493
24.9	1,384	1⅛	.....do.........	1¼	.....do.........	3	16	94	22	133¾	39 40	18 47	20 53	47.34	52.66	3.71	7.12	4.993
24.9	1,384	1⅛	.....do.........	1¼	.....do.........	3	16	94	22	133¼	40 40	18 46	21 54	46.16	53.84	3.29	7.12	4.993
24.9	1,384	1⅛	.....do.........	1¼	.....do.........	3	16	94	22	57	19 50	8 00	11 50	40.34	59.66	2.87	7.12	4.993
24.9	1,884	1⅛	.....do.........	1¼	.....do.........	5	16	94	22	91½	31 40	12 51	18 49	40.58	59.42	2.89	7.12	5.492
24.9	1,576	1½	.....do.........	1½	.....do.........	5	12	94	22	103¼	28 50	14 30	14 20	50.29	49.71	3.58	7.12	5.493
24.9	1,384	1⅛	.....do.........	1¼	.....do.........	5	16	94	22	46	15 50	6 28	9 22	40.80	59.20	2.91	7.12	5.493
24.9	1,384	1⅛	.....do.........	1¼	.....do.........	3	12	94	22	101¼	24 50	14 13	10 37	57.26	42.74	4.08	7.12	4.993
24.1	1,384	1⅛	.....do.........	1¼	.....do.........	3	12	94	22	78¼	20 50	11 04	9 46	53.09	46.91	3.78	7.12	4.993
24.6	1,384	1⅛	.....do.........	1¼	.....do.........	5	16	94	22	84	20 50	11 48	9 02	56.64	43.36	4.03	7.12	3.493
24.9	1,384	1⅛	.....do.........	1¼	.....do.........	5	16	94	22	86½	26 50	12 09	14 41	45.28	54.72	3.22	7.12	5.493
25.4	1,384	1⅛	.....do.........	1¼	.....do.........	5	16	105	22	90¼	26 40	11 25	15 15	42.79	57.21	3.40	7.95	4.493
24.8	1.384	1⅛	.....do.........	1¼	.....do.........	6	8	105	22	160¼	43 20	20 13	23 07	46.64	53.36	3.71	7.95	4.993
24.0	1,190	1⅛	.....do.........	1¼	.....do.........	5	8	94	24	103	23 50	15 47	8 03	66.21	33.79	4.32	6.53	4.856
22.4	1,576	1½	.....do.........	1½	.....do.........	5	12	94	24	70	20 50	10 43	10 07	51.46	48.54	3.36	6.53	4.856
22.7	1,576	1½	.....do.........	1½	.....do.........	5	16	94	24	161	35 30	24 40	10 50	69.46	30.54	4.54	6.53	4.856
24.7	1,192	1⅛	.....do.........	1¼	.....do.........	5	8	94	24	110½	43 20	16 56	26 24	39.07	60.93	2.55	6.53	4.856
22.5	1,192	1⅛	.....do.........	1¼	.....do.........	3	8	94	24	56	21 40	8 35	13 05	39.60	60.40	2.58	6.53	5.256
23.5	1,192	1⅛	.....do.........	1¼	.....do.........	3	8	94	24	129½	42 30	17 18	25 12	40.71	59.29	4.05	6.53	5.356
22.5	1,192	1⅛	.....do.........	1¼	.....do.........	3	8	94	24	93½	37 30	14 19	23 11	38.19	61.81	2.49	6.53	5.356

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

PLAIN OVERCOATINGS AND CLOAKINGS.

MALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
21.6	1,920	1/2	Woolen	1/1¾	Woolen	3	8	100	24	143	34 40	20 35	14 05	59.4	40.6	4.12	6.94	3.88
21.6	1,920	1/2	do	1/1¾	do	3	8	100	24	126	36 20	18 08	18 12	49.9	50.1	3.47	6.94	3.88
13.9	2,090	1/4½	do	1/4½	do	3	8	92	38	102½	47 00	25 24	21 36	54.0	46.0	2.18	4.04	7.4
16.2	3,350	1/4	do	1/4½	do	2	12	92	46	112	43 00	33 36	9 24	78.1	21.9	2.60	3.33	8.0
17.4	3,350	1/4	do	1/4½	do	2	12	92	46	95½	47 00	26 39	20 21	61.0	39.0	2.03	3.33	8.0
14.4	3,306	1/4¾	do	1/5½	do	2	9	92	50	115	43 30	37 30	6 00	86.5	13.5	2.65	3.07	8.4
14.6	3,306	1/4¾	do	1/5½	do	2	9	92	50	89	47 00	29 01	17 59	61.7	38.3	1.89	3.07	8.4
14.0	3,306	1/4¾	do	1/5½	do	2	9	92	50	92	42 00	30 00	12 00	71.4	28.6	2.19	3.07	8.4
14.6	3,326	1/4¾	do	1/5½	do	2	9	92	50	29	17 30	9 28	8 02	54.0	46.0	1.66	3.07	8.4
17.0	3,674	1/4½	do	1/5	do	2	8	92	52	75½	29 00	25 36	3 24	88.3	11.7	2.60	2.95	8.9
17.0	3,674	1/4½	do	1/5	do	2	8	92	52	89	33 30	30 11	3 19	90.1	9.9	2.66	2.95	8.6
29.0	1,960	5/1	do	3/1	do	2	4	74	20	327	119 30	53 02	66 28	44.38	55.62	2.74	6.17	10.5
29.0	1,960	5/1	do	3/1	do	2	4	74	20	370	123 30	60 00	63 30	48.58	51.42	3.00	6.17	10.5
25.0	5,100	22/1	do	9½	do	3	15	80	67	55	52 30	27 38	24 52	52.65	47.35	1.05	2.00	17.8
28.0	3,800 1,900	2-22/1 1-6/1	Worsted Woolen	2-22/1 1-6/1	Worsted Woolen	3	15	80	67	157	129 00	78 53	50 07	61.16	38.84	1.22	2.00	16.0
25.0	5,100	22/1	Worsted	9/1	do	2	16	80	75	140	125 30	78 45	46 45	62.75	37.25	1.12	1.78	12.4
26.0	5,300	22/1	do	9/1	do	2	16	80	75	37	35 00	20 49	14 11	59.46	40.54	1.06	1.78	12.4
25.0	5,100	22/1	do	9/1	do	2	16	80	75	146	157 00	82 07	74 53	52.31	47.69	.93	1.78	12.4
25.0	5,100	22/1	do	9/1	do	2	16	80	75	95	98 15	53 26	44 49	54.39	45.61	.97	1.78	12.4
26.0	5,300	22/1	do	9/1	do	2	16	80	75	165	159 00	92 49	66 11	58.37	41.63	1.04	1.78	12.4
28.0	3,800 1,900	2-22/1 1-6/1	do Woolen	2-22/1 1-6/1	Worsted Woolen	2	16	80	75	122	113 15	68 37	44 38	60.59	39.41	1.08	1.78	16.0
35.3	4,000	1-3½	do	1-4 1-2	do	3	12	92	66	92	46 45	39 36	7 09	84.7	15.3	1.97	2.32	8.0

29.5	1,680	1-1¾	do.	1-1¾	do.	5	12	98	24	215	45 00	31 23	13 37	69.7	30.3	4.78	6.85	4.2
23.0	1,156	1-1¼	do.	1-1¼	do.	5	8	96	24	176	38 00	26 24	11 36	69.5	30.5	4.63	6.67	4.5
23.9	2,880	2½	do.	2½	do.	3	10	94	32	104½	32 50	21 17	11 33	64.82	35.18	3.18	4.90	5.808
24.8	2,880	2¼	do.	2¼	do.	3	10	94	32	74½	32 30	15 13	17 17	49.87	50.13	2.29	4.90	5.808
23.9	2,880	2¼	do.	2¼	do.	3	10	94	32	64½	24 40	13 10	11 30	53.42	46.58	2.61	4.90	5.808
23.9	2,880	2¼	do.	2¼	do.	3	10	94	32	114¾	31 40	23 26	8 14	73.99	26.01	3.62	4.90	5.808
27.9	2,860	2¼	do.	2¼	do.	3	12	94	34	48½	24 40	10 29	14 11	42.50	57.50	1.96	4.61	7.171
27.9	2,860	2¼	do.	2¼	do.	3	12	94	34	22	13 00	4 46	8 14	36.67	63.33	1.69	4.61	7.171
21.3	2,240	2	do.	1½	do.	3	8	94	24	88¾	9 30	5 56	3 34	62.45	37.55	4.08	6.53	5.808
27.4	2,240	2	do.	1½	do.	3	8	94	26	43	15 00	8 32	6 28	56.88	43.12	2.74	5.03	4.719
28.4	2,160	2	do.	1½	do.	3	8	94	30	22	8 10	4 13	3 57	51.63	48.37	4.84	2.69	6.445
24.6	2,400	2	do.	1½	do.	3	8	94	32	65	18 50	13 11	5 39	70.00	30.00	3.45	4.90	5.808
24.6	2,400	2¼	do.	2¼	do.	3	8	94	32	47	20 50	9 36	11 14	46.08	53.92	2.26	4.90	5.808
19.3	2,588	2½	do.	1½	do.	2	12	92	40	127	41 00	33 08	7 52	80.8	19.2	3.10	3.83	7.3
19.0	2,588	2½	do.	3¼	do.	2	12	92	40	130	47 00	33 55	13 05	72.2	27.8	2.77	3.83	7.3
22.4	5,323	1/4	do.	1½	do.	4	16	92	50	99½	39 30	32 27	7 03	82.1	17.9	2.52	3.07	9.1
32.1	4,200	1/2½	do.	1½	do.	2	16	92	62	31	21 00	12 32	8 28	59.7	40.3	1.48	2.47	9.8
31.5	4,260	1/2½	do.	1½	do.	2	16	92	62	74	39 00	29 55	9 05	76.7	23.3	1.90	2.47	9.8
31.8	4,260	1/2½	do.	1½	do.	2	16	92	62	88½	47 00	35 47	11 13	76.1	23.9	1.88	2.47	9.8
32.6	4,200	1/2½	do.	1½	do.	2	16	92	62	100½	47 00	40 38	6 22	86.5	13.5	2.14	2.47	9.8
31.8	4,260	1/2½	do.	1½	do.	2	16	92	62	87½	47 00	35 23	11 37	75.8	24.7	1.86	2.47	9.8
32.1	4,200	1/2½	do.	1½	do.	2	16	92	62	92	45 30	37 12	8 18	81.8	18.2	2.02	2.47	9.8
31.6	4,140	1/2½	do.	1½	do.	2	16	92	62	81	41 00	32 45	8 15	79.9	20.1	1.98	2.47	9.8
31.1	4,200	1/2½	do.	1½	do.	2	16	92	62	99	47 00	39 11	7 49	83.4	16.6	2.11	2.53	9.8
29.4	5,376	1/4	do.	1½	do.	4	24	92	74	52	31 00	25 04	5 56	81.0	19.0	1.68	2.07	11.9
28.4	5,376	1/4	do.	1½	do.	4	24	92	74	26	17 30	12 33	4 57	71.7	28.3	1.49	2.07	11.1
32.1	4,200	1/4	do.	1½	do.	4	24	92	74	45½	31 30	21 58	9 32	69.7	30.3	1.44	2.07	9.8
28.6	5,376	1/4	do.	1½	do.	4	24	92	74	31	21 00	14 58	6 02	71.2	28.8	1.48	2.07	11.9
28.4	5,376	1/4	do.	1½	do.	4	24	94	74	49	30 00	23 08	6 52	77.2	22.8	1.63	2.12	11.9
27.7	6,474	1/4½	do.	5½	do.	2	16	92	92	62	47 00	27 05	19 55	57.6	42.4	1.32	2.29	13.2
30.8	6,440	1/4½	do.	1/5	do.	2	16	94	92	60½	45 30	35 24	10 06	77.8	22.2	1.33	1.70	13.5
26.5	1,512	1-1½	do.	1-1½	do.	4	9	97	36	54½	20 10	12 05	8 05	59.9	40.1	2.69	4.49	6.75
25.6	2,880	1/2½	do.	1/2½	do.	3	24	100	44	77½	40 50	20 28	20 22	50.1	49.9	1.90	3.79	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	18	100	44	99	40 50	26 08	14 42	64.0	36.0	2.42	3.79	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	24	100	44	110	40 50	29 02	11 48	71.1	28.9	2.69	3.79	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	24	100	44	110	40 50	29 02	11 48	71.1	28.9	2.69	3.79	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	18	97	44	99	40 50	26 56	13 54	66.0	34.0	2.42	3.67	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	24	96	44	88½	40 50	24 20	16 30	59.6	40.4	2.17	3.64	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	16	100	44	109½	40 50	28 55	11 55	70.8	29.2	2.68	3.79	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	13	90	44	92½	40 50	27 08	13 42	66.4	33.6	2.27	3.41	8.27
25.6	2,880	1/2½	do.	1/2½	do.	3	18	100	44	77	40 50	20 20	20 30	49.8	50.2	1.89	3.79	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	13	90	44	78½	40 50	23 02	17 48	56.4	43.6	1.92	3.41	8.27
25.6	2,880	1/2½	do.	1/2½	do.	3	12	90	44	64½	40 50	18 55	21 55	46.3	53.7	1.58	3.41	8.27
25.6	2,880	1/2½	do.	1/2½	do.	3	12	100	44	82	37 50	21 39	16 11	57.2	42.8	2.17	3.79	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	18	99	44	98½	40 50	26 16	14 34	64.3	35.7	2.41	3.75	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	14	99	44	115½	40 50	30 48	10 02	75.4	24.6	2.83	3.75	7.64
25.6	2,880	1/2½	do.	1/2½	do.	3	14	100	44	113	40 50	29 50	11 00	73.1	26.9	2.77	3.79	7.64
15.1	2,160	1/3½	do.	1/3½	do.	3	8	95	38	130½	40 50	31 19	9 31	76.7	23.3	3.20	4.17	6.51
23.8	1,800	1/1½	do.	1/1	do.	3	6	90	24	192	40 50	30 43	10 07	75.2	24.8	4.70	6.25	4.51
23.8	1,800	1/1	do.	1/1	do.	3	6	96	24	206½	40 50	30 58	9 52	75.8	24.2	5.00	6.67	3.88
23.8	1,800	1/1	do.	1/1	do.	3	6	100	24	171½	38 50	24 42	14 08	63.6	36.4	4.42	6.94	3.88
22.6	1,440	1/1½	do.	1/1½	do.	4	4	106	24	185½	40 50	25 12	15 38	61.7	38.3	4.54	7.36	3.88
22.6	1,440	1/1½	do.	1/1½	do.	4	4	106	24	163	40 50	22 08	18 42	54.3	45.7	3.99	7.36	3.88

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

PLAIN OVERCOATINGS AND CLOAKINGS—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
22.6	1,440	1/1½	Woolen	1/1½	Woolen	4	4	90	24	112½	38 20	18 00	20 20	47.0	53.0	2.93	6.25	4.51
22.6	1,440	1/1½	do	1/1½	do	4	4	100	24	176	40 50	25 20	15 30	62.0	38.0	4.31	6.94	3.88
22.6	1,440	1/1½	do	1/1½	do	4	4	100	24	136	40 50	19 26	21 24	47.6	52.4	3.33	6.94	3.88
22.6	1,440	1/1½	do	1/1½	do	4	4	106	24	150½	40 50	20 27	20 23	50.1	49.9	3.69	7.36	3.88
22.6	1,440	1/1½	do	1/2½	do	4	8	110	24	115½	33 40	15 07	18 33	44.9	55.1	3.43	7.64	3.88
24.6	3,780	1/3¾	do	1-1/3¾	do	3	12	100	50	82	40 50	24 36	16 14	60.2	39.8	2.01	3.38	8.77
24.8	3,888	1/3¾	do	1-1/3¾	do	3	16	100	50	94½	40 50	28 21	12 29	69.4	30.6	2.31	3.33	8.77
24.8	3,888	1/3¾	do	1-1/3¾	do	3	16	100	50	88	40 50	26 24	14 26	64.7	35.3	2.16	3.33	8.77
25.6	1,800	1/1½	do	1/1½	do	3	6	100	28	142	40 50	23 52	16 58	58.4	41.6	3.48	5.95	4.64
25.6	1,800	1/1½	do	1/1½	do	3	16	106	28	106½	40 50	16 53	23 57	41.3	58.7	2.61	6.31	4.64
25.6	1,800	1/1½	do	1/1½	do	3	6	110	28	174½	40 50	26 39	14 11	65.3	34.7	4.27	6.55	4.64
25.6	1,800	1/1½	do	1/1½	do	3	6	106	28	100	40 50	15 51	24 59	38.8	61.2	2.45	6.31	4.64
25.6	1,800	1/1½	do	1/1½	do	3	6	102	28	133	40 50	21 55	18 55	53.6	46.4	3.26	6.07	4.64
25.6	1,800	1/1½	do	1/1½	do	3	6	98	28	140	40 50	24 00	16 50	58.8	41.2	3.43	5.83	4.64
24.9	3,780	1/3¾	do	1-1/3¾	do	3	12	98	52	79	40 50	25 09	15 41	61.6	38.4	1.83	3.14	9.15
24.9	3,780	1/3¾	do	1-1/3¾	do	3	12	100	52	95	40 50	29 38	11 12	72.6	27.4	2.23	3.21	9.15
24.9	3,780	1/3¾	do	1-1/3¾	do	3	12	100	52	110	40 50	34 19	6 31	80.0	20.0	2.69	3.21	9.15
24.9	3,780	1/3¾	do	1-1/3¾	do	3	12	100	52	77	40 50	24 01	16 49	58.8	41.2	1.89	3.21	9.15
24.9	3,780	1/3¾	do	1-1/3¾	do	3	12	100	52	77	37 50	24 01	13 49	63.5	36.5	2.04	3.21	9.15
24.9	3,780	1/3¾	do	1-1/3¾	do	3	12	100	52	85½	40 50	26 41	14 09	65.3	34.7	2.09	3.21	9.15
24.9	3,780	1/3¾	do	1-1/3¾	do	3	12	100	52	77½	40 50	24 11	16 39	59.2	40.8	1.90	3.21	9.15
26.9	1,800	1½	do	1½	do	3	8	94	20	148½	31 40	18 57	12 43	59.84	40.16	4.69	7.83	3.63
27.1	1,800	1½	do	1½	do	3	8	94	20	61	15 50	7 47	8 03	49.20	50.80	3.85	7.83	3.63
26.9	1,800	1½	do	1½	do	3	8	94	20	78	21 40	9 58	11 42	45.97	54.03	3.60	7.83	3.63
25.3	2,400	2	do	2¼	do	3	10	94	32	22	10 00	4 29	5 31	44.83	55.17	2.20	4.80	5.808
30.6	1,920	1½	do	1-20	Worsted	3	8	94	20	51	16 00	6 31	9 29	40.69	59.31	3.19	7.83	5.13

24.1	1,800	1½	.....do..........	1½	Woolen........	3	8	94	20	39	7 00	4 59	2 01	71.14	28.86	5.57	7.83	3.68
30.6	1,920	1½	.....do..........	1-20	Worsted.......	3	8	94	20	102½	21 40	13 05	8 35	60.41	39.59	4.73	7.83	3.68
26.0	1,800	1½	.....do..........	1½	Woolen........	5	8	94	20	15	6 00	1 55	4 05	31.83	68.17	2.50	7.83	3.63
26.0	1,800	1½	.....do..........	1½	.....do........	3	8	94	20	157¾	35 40	20 08	15 32	56.47	43.53	4.42	7.83	3.63
26.0	1,800	1½	.....do..........	1½	.....do........	3	8	94	20	108¾	21 40	13 53	7 47	64.06	35.94	5.02	7.83	3.68
30.6	1,920	1½	.....do..........	1-20	Worsted.......	3	8	94	20	53½	25 30	6 49	18 41	26.73	73.27	2.10	7.83	3.68
23.6	1,920	1½	.....do..........	1-20	.....do........	3	8	94	20	135½	24 40	17 17	7 23	70.07	29.93	5.60	7.83	3.68
27.8	1,800	1½	.....do..........	1½	Woolen........	3	8	94	20	131	32 30	16 43	15 47	51.45	48.55	4.03	7.83	3.63
30.6	1,920	1½	.....do..........	1-20	Worsted........	3	8	94	20	128¼	32 30	16 26	16 04	50.58	49.42	3.96	7.83	3.63
30.6	1,920	1½	.....do..........	1-20	.....do........	3	8	94	20	158½	42 30	20 14	22 16	47.60	52.40	3.73	7.83	3.63
30.6	1,920	1½	.....do..........	1-20	.....do........	3	8	94	20	115	25 40	14 41	10 59	57.19	42.81	4.48	7.83	3.63
32.4	1,920	1½	.....do..........	1	Woolen........	3	8	94	20	132¾	39 30	16 57	22 33	42.91	57.09	3.36	7.83	3.63
32.4	1,920	1½	.....do..........	1	.....do........	3	8	94	20	120	30 40	15 19	15 21	49.96	50.04	3.91	7.83	3.63
31.6	1,920	1½	.....do..........	1	.....do........	3	8	94	20	111½	26 50	14 14	12 36	53.03	46.97	4.16	7.83	2.62
28.9	1,728	1-1½	.....do..........	1-1½	.....do........	3	8	92	26	40¼	22 20	6 50	15 30	30.6	69.4	1.80	5.90	5.3
24.56	1,860	1-1½	.....do..........	1-1½	.....do........	5	8	90	24	245½	50 30	39 17	11 13	77.8	22.2	4.86	6.25	5.17
24.56	1,860	1-1½	.....do..........	1-1½	.....do........	5	8	90	24	286½	57 30	45 50	11 40	79.72	20.28	4.98	6.25	5.17
24.56	1,860	1-1½	.....do..........	1-1½	.....do........	5	8	90	24	251½	51 15	40 14	11 01	78.52	21.48	4.91	6.25	5.17
24.56	1,860	1-1½	.....do..........	1-1½	.....do........	5	8	90	24	212½	39 50	34 00	5 50	85.36	14.64	5.33	6.25	5.17
24.56	1,860	1-1½	.....do..........	1-1½	.....do........	5	8	90	24	48½	10 45	7 46	2 59	72.19	27.81	4.51	6.25	5.17
24.56	1,860	1-1½	.....do..........	1-1½	.....do........	5	8	90	24	76½	15 30	12 14	3 16	78.97	21.03	4.94	6.25	5.17
24.56	1,860	1-1½	.....do..........	1-1½	.....do........	5	8	90	24	122½	30 15	19 36	10 39	64.8	35.2	4.05	6.25	5.17
25.12	1,860	1-1½	.....do..........	1-1½	.....do........	5	8	90	26	241	52 00	41 46	10 14	80.3	19.7	4.63	5.77	5.61
24.98	1,852	1-1½	.....do..........	1-1½	.....do........	5	9	90	26	89½	21 00	15 31	5 29	73.9	26.1	4.28	5.77	5.61
25.12	1,860	1-1½	.....do..........	1-1½	.....do........	5	8	90	26	254½	58 00	44 07	13 53	76.1	23.9	4.39	5.77	5.61
24.85	1,820	1-1½	.....do..........	1-1½	.....do........	5	8	90	26	58	12 30	10 03	2 27	80.40	19.60	4.64	5.77	5.61
25.12	1,860	1-1½	.....do..........	1-1½	.....do........	5	8	90	26	245½	52 30	42 33	9 57	81.05	18.95	4.68	5.77	5.61
24.85	1,820	1-1½	.....do..........	1-1½	.....do........	5	8	90	26	165½	43 20	28 41	14 39	66.21	33.79	3.82	5.77	5.61
25.14	1,836	1-1½	.....do..........	1-1½	.....do........	5	8	90	26	236½	48 40	41 00	7 40	84.25	15.75	4.86	5.77	5.61
25.14	1,836	1-1½	.....do..........	1-1½	.....do........	5	8	90	26	267	58 00	46 17	11 43	79.79	20.21	4.60	5.77	5.61
24.98	1,852	1-1½	.....do..........	1-1½	.....do........	5	9	90	26	107½	21 30	18 38	2 52	86.65	13.35	5.00	5.77	5.61
24.98	1,852	1-1½	.....do..........	1-1½	.....do........	5	9	90	26	63	16 50	10 55	5 55	64.93	35.07	3.74	5.77	5.61
24.46	1,852	1-1½	.....do..........	1-1½	.....do........	5	8	90	26	67	14 00	11 37	2 23	82.93	17.07	4.79	5.77	5.61
25.14	1,836	1-1½	.....do..........	1-1½	.....do........	5	8	90	26	230	58 00	39 52	18 08	68.7	31.3	3.97	5.77	5.61
24.85	1,820	1-1½	.....do..........	1-1½	.....do........	5	8	90	26	164	34 15	28 26	5 49	83.0	17.0	4.79	5.77	5.61
26.59	1,788	2-3	.....do..........	2-3	.....do........	5	6	90	27	67½	16 15	12·09	4 06	74.8	25.2	4.15	5.56	5.83
26.59	1,788	2-3	.....do..........	2-3	.....do........	5	6	90	27	177½	58 00	31 57	26 03	55.09	44.91	3.06	5.56	5.83
24.69	2,940	1-2½	.....do..........	1-2½	.....do........	5	12	100	42	55	15 40	13 52	1 48	88.5	11.5	3.51	3.97	7.7
24.50	2,940	1-2½	.....do..........	1-2½	.....do........	5	15	100	42	146½	53 30	36 55	16 35	69.0	31.0	2.74	3.97	7.7
24.69	2,940	1-2½	.....do..........	1-2½	.....do........	5	12	100	42	121	40 00	30 29	9 31	76.2	23.8	3.02	3.97	7.7
24.69	2,940	1-2½	.....do..........	1-2½	.....do........	5	12	100	42	23½	8 10	5 55	2 15	72.49	27.51	2.88	3.97	7.7
24.69	2,940	1-2½	.....do..........	1-2½	.....do........	5	12	100	42	73½	20 50	18 31	2 19	88.90	11.10	3.53	3.97	7.7
24.69	2,940	1-2½	.....do..........	1-2½	.....do........	5	12	100	42	150½	44 45	37 56	6 49	84.76	15.24	3.36	3.97	7.7
26.49	3,084	1-2½	.....do..........	1-2½	.....do........	5	20	100	44	59	22 30	15 35	6 55	69.2	30.8	2.64	3.79	7.92
25.40	3,948	1-3½	.....do..........	1-3¾ 1-2	....do.........	4	18	100	50	140½	56 00	42 09	13 51	72.3	27.7	2.51	3.33	9.3
25.40	3,948	1-3½	.....do..........	1-3¾ 1-2	....do.........	4	18	100	50	159½	58 00	47 51	10 09	82.5	17.5	2.75	3.33	9.3
24.90	3,900	1-3½	.....do..........	1-3¾ 1-2	....do.........	4	27	100	50	137½	58 00	41 15	16 45	71.1	28.9	2.37	3.33	9.3
25.20	3,948	1-3½	.....do..........	1-3¾ 1-2	....do.........	4	26	100	50	107½	50 00	32 15	17 45	64.5	35.5	2.15	3.33	9.3

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

PLAIN OVERCOATINGS AND CLOAKINGS—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
25.40	3,948	1-3½	Woolen	1-3½ 1-2	Woolen	4	16	100	50	86½	34 35	25 57	8 38	75.0	25.0	2.50	3.33	8.8
25.13	3,948	1-3½	do	1-3¾ 1-2	do	4	20	100	50	123½	58 00	37 03	20 57	63.9	36.1	2.13	3.33	9.3
25.40	3,948	1-3¼	do	1-3¾ 1-2	do	4	18	100	50	134½	58 00	40 21	17 39	69.57	30.43	2.32	3.33	9.3
25.40	3,948	1-3½	do	1-2	do	4	18	100	50	103	35 45	30 54	4 51	86.43	13.57	2.88	3.33	9.3
24.90	3,908	1-3½	do	1-3¾ 1-2	do	4	26	100	50	49½	56 45	14 51	41 54	26.2	73.8	0.87	3.33	9.3
25.40	3,948	1-3½	do	1-3¾ 1-2	do	4	16	100	50	147	58 00	44 06	13 54	76.0	24.0	2.53	3.33	8.8
17.81	6,990	2-38	Worsted	2-39	Worsted	5	15	100	56	20½	8 15	6 53	1 22	83.52	16.48	2.48	2.98	9.79
14.2	2,640	1-4	Woolen		Woolen	2	6	110	30	102¼	36 30	16 45	19 45	45.9	54.1	2.80	6.11	2.5
13.6	2,400	1-4¼	do	1-4	do	2	3	100	30	140	45 00	30 14	14 46	67.2	32.8	3.55	5.55	2.9
14.3	2,640	1-4	do	1-4	do	2	3	90	30	76	21 00	15 12	5 48	72.4	27.6	3.62	5.00	2.7
14.2	2,640	1-4	do	1-4	do	2	3	90	30	100	48 00	20 00	28 00	41.7	58.3	2.08	5.00	2.7
22.7	1,144	1-1½	do	1-1½	do	2	4	110	20	344	61 30	37 32	23 58	61.0	39.0	5.59	9.17	3.4
22.5	1,144	1-1½	do	1-1½	do	2	4	110	20	286½	61 30	31 15	30 15	50.8	49.2	4.66	9.17	3.4
21.7	1,144	1-1½	do	1-1½	do	2	4	110	20	329¾	60 30	35 57	24 33	59.4	40.6	5.45	9.17	3.4
22.4	1,144	1-1½	do	1-1½	do	2	4	110	20	231¼	45 00	25 15	19 45	56.1	43.9	5.14	9.17	3.4
22.5	1,144	1-1½	do	1-1½	do	2	4	110	20	225	42 00	24 33	17 27	58.5	41.5	5.56	9.17	3.4
22.7	1,144	1-1½	do	1-1½	do	2	4	110	20	327	50 30	35 40	14 50	70.6	29.4	6.48	9.17	3.4
21.2	1,144	1-1½	do	1-1½	do	2	4	110	20	198½	32 00	21 39	10 21	67.7	32.3	6.20	9.17	3.4
21.9	1,144	1-1½	do	1-1½	do	2	4	110	20	300¼	52 30	32 47	19 43	62.4	37.6	5.72	9.17	3.4
23.1	1,144	1-1½	do	1-1½	do	2	4	110	20	313½	70 00	34 12	35 48	48.9	51.1	4.48	9.17	3.4
22.3	1,144	1-1½	do	1-1½	do	3	4	110	20	298	50 30	32 31	17 59	64.4	35.6	5.90	9.17	3.4

23.0	1,144	1-1½	.....do.........	1-1½	.....do.........	3	4	110	20	340	61 30	37 05	24 25	60.3	39.7	5.53	9.17	3.4
22.7	1,144	1-1½	.....do.........	1-1½	.....do.........	2	4	110	20	296	47 30	32 17	15 13	68.0	32.0	6.23	9.17	3.4
22.3	1,144	1-1½	.....do.........	1-1½	.....do.........	2	4	110	20	280	50 30	30 33	19 57	60.5	39.5	5.54	9.17	3.4
22.2	1,144	1-1½	.....do.........	1-1½	.....do.........	2	4	110	20	384½	61 30	41 57	19 33	68.2	31.8	6.25	9.17	3.4
22.7	1,144	1-1½	.....do.........	1-1½	.....do.........	2	4	110	20	303½	58 30	33 07	25 23	56.6	43.4	5.19	9.17	3.4
22.1	1,144	1-1½	.....do.........	1-1½	.....do.........	3	4	110	20	321	61 30	35 01	26 29	56.9	43.1	5.22	9.17	3.5
22.3	1,144	1-1½	.....do.........	1-1½	.....do.........	2	4	110	20	257	57 30	28 02	29 28	48.8	51.2	4.47	9.17	3.4
22.1	1,144	1-1½	.....do.........	1-1½	.....do.........	2	4	110	20	333½	57 30	36 21	21 09	63.2	36.8	5.80	9.17	3.4
22.0	1,144	1-1½	.....do.........	1-1½	.....do.........	3	4	110	20	197½	39 30	21 33	17 57	54.6	45.4	5.00	9.17	3.4
22.7	1,144	1-1½	.....do.........	1-1½	.....do.........	3	4	110	20	286½	54 00	31 15	22 45	57.9	42.1	5.30	9.17	3.4
22.5	1,144	1-1½	.....do	1-1½	.....do	2	4	110	20	294½	62 30	32 08	30 22	52.2	47.8	4.71	9.17	3.4
22.0	1,144	1-1½	.....do	1-1½	.....do	3	4	100	20	249	53 30	29 53	23 37	55.9	44.1	4.65	8.33	3.5
22.0	1,144	1-1½	.....do	1-1½	.....do	2	4	110	20	281	47 30	30 39	16 51	64.5	35.5	5.92	9.17	3.4
22.0	1,144	1-1½	.....do	1-1½	.....do	2	4	110	20	294½	57 30	32 08	25 22	55.9	44.1	5.12	9.17	3.4
22.8	1,144	1-1½	.....do	1-1½	.....do	2	4	110	20	326½	62 00	35 35	26 25	57.4	42.6	5.26	9.17	3.4
22.7	1,144	1-1½	.....do	1-1½	.....do	2	4	110	20	325	65 00	35 27	29 33	54.5	45.5	5.00	9.17	3.4
26.6	4,224	1-4½	.....do	1-4½	.....do	2	4	110	57	62	42 30	19 17	23 13	45.4	54.6	1.46	3.22	4.0

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

PLAIN OVERCOATINGS AND CLOAKINGS—Continued.

FEMALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
29.8	2,160	1-1¼	Woolen	1-1⅜	Woolen	4	8	97	26	29	8 40	4 40	4 00	53.8	46.2	3.35	6.21	5.5
30.8	1,768	1-1¼	do	1-1¼	do	4	12	98	26	95¾	19 35	15 14	4 21	77.8	22.2	4.89	6.28	5.5
25.5	4,000	1-3¼	do	1-3¼	do	3	6	92	50	122	51 45	39 47	11 58	76.9	23.1	2.36	3.07	8.0
25.5	4,000	1-3¼	do	1-3¼	do	3	8	92	50	108½	43 30	35 23	8 07	80.8	19.2	2.49	3.07	8.0
25.5	4,000	1-3¼	do	1-3¼	do	3	8	92	50	117	51 45	38 09	13 36	73.7	26.3	2.26	3.07	8.0
25.5	4,000	1-3¼	do	1-3¼	do	3	8	92	50	126	51 45	41 05	10 40	79.3	20.7	2.43	3.07	8.0
33.5	4,000	1-3⅛	do	1-4 1-2	do	3	12	92	66	78	45 30	33 34	11 56	73.8	26.2	1.71	2.32	12.3
33.3	4,000	1-3⅛	do	1-4 1-2	do	3	12	92	66	68	37 30	29 16	8 14	78.0	22.0	1.81	2.32	12.3
33.5	4,000	1-3⅛	do	1-4 1-2	do	3	12	92	66	80	51 45	34 26	17 19	66.5	33.5	1.55	2.32	12.3
25.6	2,880	1/2½	do	1/2½	do	3	13	100	44	98½	40 50	26 00	14 50	63.7	36.3	2.41	3.79	7.64
25.6	2,880	1/2½	do	1/2½	do	3	13	90	44	57½	40 50	16 52	23 58	41.3	58.7	1.41	3.41	8.27
25.6	2,880	1/2½	do	1/2½	do	3	14	90	44	77	40 50	22 35	18 15	55.3	44.7	1.89	3.41	8.27
25.6	2,880	1/2½	do	1/2½	do	3	18	100	44	83½	40 50	22 02	18 48	54.0	46.0	2.04	3.79	7.64
25.6	2,880	1/2½	do	1/2½	do	3	12	96	44	87½	40 50	24 04	16 46	58.9	41.1	2.14	3.64	7.64
22.6	1,440	1/1½	do	1/1½	do	4	4	100	24	156½	40 50	22 32	18 18	55.2	44.8	3.83	6.94	3.88
22.6	1,440	1/1½	do	1/1½	do	4	4	106	24	139	40 50	18 53	21 57	46.2	53.8	3.40	7.36	3.88
22.6	1,440	1/1½	do	1/1½	do	4	4	100	24	127	40 50	18 17	22 33	44.8	55.2	3.11	6.94	3.88
22.6	1,440	1/1½	do	1/1½	do	4	4	100	24	142½	40 50	20 31	20 19	50.2	49.8	3.49	6.94	3.88
22.6	1,440	1/1½	do	1/1½	do	4	4	96	24	149	40 50	22 21	18 29	54.7	45.3	3.65	6.67	3.88
25.6	1,800	1/1½	do	1/1½	do	3	6	98	28	145½	40 50	24 56	15 54	61.1	38.9	3.56	5.83	4.64
25.6	1,800	1/1½	do	1/1½	do	3	6	98	28	114½	40 50	19 38	21 12	48.1	51.9	2.80	5.83	4.64
25.6	1,800	1/1½	do	1/1½	do	3	6	106	28	107½	40 50	17 02	23 48	41.7	58.3	2.63	6.31	4.64
25.6	1,800	1/1½	do	1/1½	do	3	6	110	28	108	32 40	16 29	16 11	50.5	49.5	3.31	6.55	4.64

24.0	3,780	1/3½	....do..........	1/2 1-1/3¾	....do........	3	12	100	52	65	40 50	20 17	20 33	49.7	50.3	1.59	3.21	9.15
24.9	3,780	1/3½	....do..........	1/2 1-1/3¾	....do........	3	12	100	52	91	40 50	28 23	12 27	69.5	30.5	2.23	3.21	9.15
21.6	1,920	1-2	....do..........	1/1¼	....do........	3	8	100	24	166½	40 50	23 59	16 51	58.7	41.3	4.08	6.94	3.88
21.6	1,920	1-2	....do..........	1/1¼	....do........	3	8	100	24	115	40 50	16 34	24 16	40.6	59.4	2.82	6.94	3.88
21.6	1,920	1-2	....do..........	1/1¼	....do........	3	8	96	24	175½	39 20	26 19	13 01	66.9	33.1	4.46	6.67	3.88
21.6	1,920	1-2	....do..........	1/1¼	....do........	3	8	100	24	156	33 30	22 26	11 02	67.1	32.9	4.66	6.94	3.88
12.5	3,080	1-5¾	....do..........	1-5	....do........	3	6	120	42	95	26 15	19 57	6 18	76.0	24.0	3.62	4.76	3.4
12.5	3,080	1-5¾	....do..........	1-5	....do........	3	6	120	42	88	25 30	18 29	7 01	72.5	27.5	3.46	4.76	3.4
22.9	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	262½	47 30	28 38	18 52	60.3	39.7	5.58	9.17	3.4
22.3	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	301	47 30	32 50	14 40	69.1	30.9	6.34	9.17	3.4
23.0	1,144	1-1¼	....do..........	1-1¼	....do........	2	6	110	20	258	48 00	28 12	19 48	58.8	41.2	5.39	9.17	3.4
21.2	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	254	47 30	27 43	19 47	58.3	41.7	5.35	9.17	3.4
22.2	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	215	47 30	23 27	24 03	49.4	50.6	4.53	9.17	3.4
22.0	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	292	47 30	31 51	15 39	67.1	32.9	6.15	9.17	3.4
22.2	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	248	47 30	27 03	20 27	57.0	43.0	5.22	9.17	3.4
22.0	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	248¾	47 30	27 08	20 22	57.1	42.9	5.24	9.17	3.4
22.4	1,144	1-1¼	....do..........	1-1¼	....do........	3	4	110	20	139½	33 00	15 13	17 47	46.1	53.9	4.23	9.17	3.4
22.0	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	274½	47 30	29 57	17 33	63.0	37.0	5.78	9.17	3.4
22.7	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	337½	50 30	36 49	13 41	72.9	27.1	6.68	9.17	3.4
22.0	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	275	47 30	30 00	17 30	63.2	36.8	5.79	9.17	3.4
22 0	1,144	1-1¼	....do..........	1-1¼	....do........	3	4	110	20	288½	47 30	31 28	16 02	66.3	33.7	6.07	9.17	3 4
21.6	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	229½	47 30	25 02	22 28	52.7	47.3	4.83	9.17	3.4
22.2	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	315½	47 30	34 25	13 05	88.0	12.0	6.64	9.17	3.4
22 0	1,144	1-1¼	....do..........	1-1¼	....do........	2	4	110	20	310½	47 30	33 52	13 38	71.3	28.7	6.54	9.17	3.4
13.8	2,640	1-4	....do..........	1-4	....do........	2	8	85	30	79	47 30	16 43	30 47	35.2	64.8	1.66	4.72	2.9
14.3	2,640	1-4	....do..........	1-4	....do........	2	6	110	30	127	31 30	20 47	10 43	66.0	34.0	4.03	6.11	2.5
14.0	2,640	1-4	....do..........	1-4	....do........	2	3	85	30	194½	47 30	41 11	6 19	86.7	13.3	4.09	4.72	2.7
14.6	2,640	1-4	....do..........	1-4	....do........	2	3	85	30	96	26 30	20 20	6 10	76.7	23.3	3.62	4.72	2.7
14.0	2,640	1-4	....do..........	1-4	....do........	2	3	90	30	90	31 30	18 00	13 30	57.1	42.9	2.86	5.00	2.7
23.9	2,880	2¼	....do..........	2¼	....do........	3	10	94	32	94¾	26 40	19 21	7 19	72.6	27.4	3.55	4.89	5.808
23.9	2,880	2¼	....do..........	2¼	....do........	3	10	94	32	81½	26 40	16 39	10 1	62.4	37.6	3.06	4.90	5.808
24.7	2,880	2¼	....do..........	2¼	....do........	3	10	94	32	70½	25 50	14 24	11 26	55.8	44.2	2.73	4.90	5.808
28.4	2,100	2	....do..........	1¾	....do........	3	8	94	30	51	17 50	9 46	8 4	54.8	45.2	2.86	5.22	4.993
24.6	2,400	2¼	....do..........	2¼	....do........	3	8	94	32	63	22 50	12 52	9 58	56.4	43.6	2.76	4.90	5.806
12.5	2,052	1-3½	....do..........	1-3½	....do........	4	8	97	36	98	33 10	21 49	11 21	65.8	34.2	2.95	4.49	6.75
12.4	2,304	1-4	....do..........	1-4½	....do........	4	13	93	36	80½	27 50	18 38	9 12	67.0	33.0	2.88	4.30	6.75
30.6	1,920	1½	....do..........	1-20	Worsted......	3	8	94	20	99	21 40	12 38	9 02	58.3	41.7	4.57	7.83	3.63
30.6	1,920	1½	....do..........	1-20	....do........	3	8	94	20	40	8 00	5 07	2 53	63.9	36.1	5.0[illegible]	7.83	3.63
23.8	1,800	1½	....do..........	1¼	Woolen.......	3	8	94	20	161¾	37 10	20 39	16 31	55.7	44.3	4.46	7.83	3.63
26.0	1,192	1⅜	....do..........	1¼	....do........	3	8	94	20	72½	17 40	9 16	8 24	52.4	47.6	4.10	7.83	3.63
30.6	1,920	1½	....do..........	1-20	Worsted......	3	8	94	20	110¾	31 40	14 08	17 32	44.7	55.3	3.50	7.83	3.63
30.6	1,920	1½	....do..........	1-20	....do........	3	8	94	20	55	10 50	7 01	3 49	64.8	35.2	5.08	7.83	3.63
27.3	1,800	1½	....do..........	1¼	Woolen.......	3	8	94	20	95½	21 50	12 11	9 39	55.8	44.2	4.37	7.83	3.63
22.5	1,192	1⅜	....do..........	1¼	....do........	3	8	94	20	87½	18 00	11 10	6 50	62.06	37.94	3.40	6.53	5.856
26.9	1,800	1½	....do..........	1¼	....do........	3	8	94	20	90½	21 30	11 31	9 59	53.58	46.42	4.50	9.79	3.63

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

CASSIMERES.

MALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
											Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.			Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.4	2,400	3½	Woolen	3½	Woolen	3	8	92	34	174½	47 10	38 38	8 32	81.9	18.1	3.69	4.51	3.85
13.4	2,400	3½	do	3½	do	3	8	92	34	24½	6 30	5 26	1 04	83.6	16.4	3.77	4.51	3.85
13.4	2,400	3½	do	3½	do	3	8	92	34	73½	27 10	16 18	10 52	60.0	40.0	2.71	4.51	3.85
13.7	2,400	3½	do	3½	do	3	8	92	34	79½	24 50	17 38	7 12	71.1	28.9	3.21	4.51	3.85
13.4	2,400	3½	do	3½	do	3	8	92	34	83½	22 20	18 28	3 52	82.7	17.3	3.73	4.51	3.85
13.3	2,400	3½	do	3½	do	3	8	92	34	100½	30 50	24 17	6 33	78.8	21.2	3.55	4.51	3.85
13.4	2,592	3½	do	3½	do	3	8	92	34	95½	27 50	21 14	6 36	76.3	23.7	3.44	4.51	3.85
13.4	2,400	3½	do	3½	do	3	8	92	34	175	52 30	38 48	13 42	73.9	26.1	3.33	4.51	3.85
13.4	2,400	3½	do	3½	do	3	8	92	34	20	5 30	4 26	1 04	80.6	19.4	3.63	4.51	3.85
13.4	2,400	3½	do	3½	do	3	8	92	34	92	35 00	20 24	14 36	58.3	41.7	2.63	4.51	3.85
13.3	2,400	3½	do	3½	do	3	8	92	34	128½	49 20	28 26	20 54	57.6	42.4	2.60	4.51	3.85
13.4	2,400	3½	do	3½	do	3	8	92	34	140½	53 30	31 06	22 24	58.1	41.9	2.62	4.51	3.85
13.4	2,400	3½	do	3½	do	3	8	92	34	85	26 40	18 51	7 49	70.7	29.3	3.19	4.51	3.85
13.2	2,400	3½	do	3½	do	3	8	92	36	70	25 30	16 26	9 04	63.4	36.6	2.70	4.26	5.0
14.2	1,980	1/3	do	1/3	do	4	8	98	30	162	44 30	29 46	14 44	66.9	33.1	3.64	5.44	5.0
15.2	2,040	1/3'	do	1/3	do	3	8	90	30	227½	53 30	45 27	8 03	85.0	15.0	4.25	5.00	5.0
15.2	2,142	1/3	do	1/3	do	3	8	98	34	86½	39 30	17 57	21 33	45.4	54.6	2.18	4.80	5.7
16.6	1,056	1/5	do	1/3	do	3	8	98	34	115½	36 30	24 02	12 28	65.9	34.1	3.16	4.80	5.7
20.6	2,730	1/3	do	1/3	do	3	8	98	40	112½	39 30	27 33	11 57	69.7	30.3	2.85	4.06	6.8
12.1	2,688	4½	do	4½	do	5	8	100	40	20½	5 00	4 55	05	80.4	19.6	4.10	4.17	7.0
12.1	2,688	4½	do	4½	do	4	8	100	40	116½	51 30	27 54	23 36	54.2	45.8	2.26	4.17	7.0
12.1	2,688	4½	do	4½	do	5	16	100	40	40	11 20	9 36	1 44	84.7	15.3	3.53	4.17	7.0
12.1	2,688	4½	do	4½	do	5	12	100	40	128½	51 20	30 50	20 40	59.9	40.1	2.50	4.17	7.0
12.1	2,688	4½	do	4½	do	5	8	100	40	129	46 00	30 58	15 02	67.3	32.7	2.80	4.17	7.0
12.1	2,688	4½	do	4½	do	5	10	100	40	137	44 50	32 53	11 57	73.3	26.7	3.06	4.17	7.0
12.1	2,880	4½	do	4½	do	5	8	100	40	114½	51 30	27 29	24 01	53.4	46.6	2.22	4.17	7.0

12.1	2,688	4½	.....do.........	4½	.....do.........	4	8	100	40	116	51 30	27 50	23 40	54.1	45.9	2.25	4.17	7.0
12.1	2,688	4½	.....do.........	4½	.....do.........	5	8	100	40	29	8 00	6 58	1 02	87.0	13.0	3.63	4.17	7.0
13.7	800	4½	.....do.........	1½	.....do.........	5	10	100	42	69½	22 00	17 27	4 33	79.3	20.7	3.15	3.97	7.35
13.8	3,072	4½	.....do.........	4½	.....do.........	5	12	100	42	122½	35 30	30 49	4 41	86.8	13.2	3.44	3.97	8.0
11.6	2,880	4½	.....do.........	4½	.....do.........	5	10	100	42	44½	15 20	11 17	4 03	73.5	26.5	2.92	3.97	7.35
19.3	3,024	3½	.....do.........	3½	.....do.........	5	18	100	44	48	14 30	12 40	1 50	87.4	12.6	3.31	3.79	8.0
19.3	3,024	3½	.....do.........	3½	.....do.........	5	10	100	44	77½	27 30	20 32	6 58	74.6	25.4	2.83	3.79	8.0
18.3	3,024	3½	.....do.........	3½	.....do.........	5	10	100	44	60	35 40	15 50	19 50	44.4	55.6	1.68	3.79	8.0
13.8	3,072	4½	.....do.........	4½	.....do.........	5	8	100	46	55	25 30	15 11	10 19	59.5	40.5	2.16	3.62	8.0
20.5	1,440	1½	.....do.........	1½	.....do.........	4	12	94	25	43	9 00	6 52	2 08	76.2	23.8	4.78	6.27	4.75
21.2	1,440	1½	.....do.........	1½	.....do.........	5	12	94	25	48½	11 30	7 42	3 48	67.0	33.0	4.20	6.27	4.75
21.4	1,440	1½	.....do.........	1½	.....do.........	4	12	94	25	36	7 30	5 44	1 46	76.5	23.5	4.80	6.27	4.75
20.4	1,440	1½	.....do.........	1½	.....do.........	4	12	94	25	81	23 00	12 56	10 04	56.2	43.8	3.52	6.27	4.75
21.3	1,440	1½	.....do.........	1½	.....do.........	4	12	94	25	26½	6 00	4 14	1 46	70.5	29.5	4.42	6.27	4.75
20.1	1,786	1½	.....do.........	1½	.....do.........	4	8	94	26	80½	21 30	13 24	8 06	62.3	37.7	3.76	6.03	4.86
19.8	1,804	1½	.....do.........	1½	.....do.........	5	9	94	26	48½	17 00	8 03	8 57	47.4	52.6	2.85	6.03	4.86
29.2	1,760	1½	.....do.........	1½	.....do.........	4	12	94	26	97	33 30	16 06	17 24	48.1	51.9	2.90	6.03	5.34
20.6	1,716	1½	.....do.........	1½	.....do.........	4	8	94	26	31½	7 00	5 14	1 46	74.7	25.3	4.50	6.03	4.86
20.5	2,056	1½	.....do.........	1½	.....do.........	4	8	94	26	155½	34 30	25 46	8 44	74.7	25.3	4.50	6.03	4.86
14.5	2,880	4½	.....do.........	5	.....do.........	3	8	98	44	[illegible]	10 30	7 49	2 41	74.4	25.6	2.76	3.71	6.9
19.8	2,040	2½	.....do.........	2½	.....do.........	5	8	92	32	53	19 20	11 04	8 16	57.2	42.8	2.74	4.79	5.4
14.6	2,400	4	.....do.........	4½	.....do.........	5	8	96	40	25½	8 00	6 23	1 37	79.8	20.2	3.19	4.00	6.6
16.4	2,440	3½	.....do.........	3½	.....do.........	3	8	96	44	18	8 40	4 57	3 43	57.1	42.9	2.07	3.64	7.1
16.5	2,400	3½	.....do.........	3½	.....do.........	5	6	96	44	114	42 00	31 21	10 39	74.6	25.4	2.71	3.64	7.1
16.5	2,400	3½	.....do.........	3½	.....do.........	4	8	96	44	51	18 40	14 01	4 39	75.1	24.9	2.73	3.64	7.1
17.6	1,920	2½	.....do.........	2½	.....do.........	3	8	96	44	49	17 00	13 28	3 32	79.2	20.8	2.88	3.64	5.4
16.4	2,400	3½	.....do.........	3½	.....do.........	5	8	96	44	62	20 40	17 03	3 37	82.5	17.5	3.00	3.64	7.1
16.4	2,400	3½	.....do.........	3½	.....do.........	3	8	96	44	106	34 30	29 09	5 21	84.5	15.5	3.07	3.64	7.1
16.6	2,400	3½	.....do.........	3½	.....do.........	5	6	96	44	132	42 40	36 18	6 22	85.1	14.9	3.09	3.64	7.1
17.5	2,500	3½	.....do.........	3½	.....do.........	5	9	96	44	55	17 40	15 07	2 33	85.6	14.4	3.11	3.64	7.1
13.2	2,700	4	.....do.........	4½	.....do.........	3	12	96	46	83	28 20	23 52	4 28	84.2	15.8	2.90	3.48	7.4
13.4	2,700	4	.....do.........	4½	.....do.........	3	9	96	46	56	32 30	16 06	16 24	49.5	50.5	1.72	3.48	7.4
13.4	2,700	4	.....do.........	4½	.....do.........	3	9	96	46	31	10 40	8 55	1 45	83.6	16.4	2.91	3.48	7.4
17.4	2,880	3½	.....do.........	4½	.....do.........	3	12	96	48	66	37 20	19 48	17 32	53.0	47.0	1.78	3.33	7.7
17.5	2,880	3½	.....do.........	4½	.....do.........	4	8	92	48	80	32 00	25 02	6 58	78.2	21.8	2.50	3.19	7.7
17.5	2,880	3½	.....do.........	4½	.....do.........	4	8	92	48	58	20 40	18 10	2 30	87.9	12.1	2.81	3.19	7.7
17.2	2,880	3½	.....do.........	4½	.....do.........	4	12	96	48	25	8 00	7 30	30	91.2	8.8	3.13	3.33	7.7
17.5	2,880	3½	.....do.........	4½	.....do.........	4	8	92	48	25	10 00	7 50	2 10	78.3	21.7	2.50	3.19	7.7
13.4	3,024	5	.....do.........	6	.....do.........	3	12	96	54	88½	42 00	29 52	12 08	71.1	28.9	2.11	2.96	8.4
13.4	2,880	5	.....do.........	6	.....do.........	5	12	96	54	45	20 20	15 12	5 08	74.8	25.2	2.21	2.96	8.4
13.2	3,240	5	.....do.........	6	.....do.........	3	9	96	54	73	42 20	24 38	17 42	57.7	42.3	1.71	2.96	8.4
13.2	3,240	5	.....do.........	6	.....do.........	3	11	96	54	93	39 40	31 23	8 17	79.1	20.9	2.34	2.96	8.4
13.6	2,880	5	.....do.........	6	.....do.........	5	8	96	54	93	42 40	31 23	11 17	73.6	26.4	2.18	2.96	8.4
13.4	3,024	5	.....do.........	6	.....do.........	3	12	96	54	94	42 40	31 44	10 56	74.4	25.6	2.20	2.96	8.4
13.3	3,060	5	.....do.........	6	.....do.........	3	10	96	54	83	34 00	28 01	5 59	82.4	17.6	2.44	2.96	8.4
13.2	2,880	5	.....do.........	6	.....do.........	5	8	96	54	92	42 40	31 03	11 37	72.8	27.2	2.16	2.96	8.4
13.4	3,024	5	.....do.........	6	.....do.........	3	10	96	54	29	14 00	9 46	4 14	69.8	30.2	2.07	2.96	8.4
12.2	1,928	1/3	.....do.........	1/3	.....do.........	3	8	98	26	184	40 30	29 17	11 13	72.3	27.7	4.54	6.28	4.4
13.4	1,656	1½	.....do.........	1½	.....do.........	3	8	98	27	109	23 30	18 01	5 29	76.7	23.3	4.64	6.05	3.7
14.0	1,584	1½	.....do.........	1½	.....do.........	4	8	98	16	63	11 30	6 10	5 20	53.7	46.3	5.48	10.21	3.7
13.5	1,656	2½	.....do.........	1/3	.....do.........	4	8	98	27	82½	16 00	13 38	2 22	85.3	14.7	5.16	6.05	4.6
19.0	1,420	2/3	.....do.........	2/3	.....do.........	3	8	98	18	184½	25 00	20 20	4 40	81.3	18.7	7.38	9.07	3.7
18.6	1,420	2/3	.....do.........	2/3	.....do.........	3	8	98	18	247½	37 00	27 15	9 45	73.6	26.4	6.68	9.07	3.7

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

CASSIMERES—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.8	2,112	2¼	Woolen	2¼	Woolen	3	8	98	20	187	45 15	22 54	22 21	50.6	49.4	4.13	8.17	3.7
15.2	2,142	1/3	do	1/3	do	3	8	98	34	86¼	39 30	17 57	21 33	45.4	54.6	2.18	4.80	5.7
13.8	1,656	2½	do	1/3	do	4	8	98	27	79¾	17 00	13 11	3 49	77.5	22.5	4.69	6.05	4.6
13.4	1,728	2½	do	1/3	do	4	8	98	28	56	14 00	9 36	4 24	68.6	31.4	4.00	5.83	4.7
18.6	1,420	2/3	do	2/3	do	3	8	98	18	90¾	16 30	10 00	6 30	60.6	39.4	5.50	9.07	3.7
14.2	1,980	1/3	do	1/3	do	4	8	98	30	162	44 30	29 46	14 44	66.9	33.1	3.64	5.44	5.0
18.8	1,656	2/3	do	2/3	do	3	8	98	18	92	22 00	10 08	11 52	46.1	53.9	4.18	9.07	3.7
16.6	1,056	1/5	do	1/3	do	3	8	98	34	115¼	36 30	24 02	12 28	65.9	34.1	3.16	4.80	5.7
12.2	1,988	1/3	do	1/3	do	3	8	98	26	169¼	38 30	27 01	11 29	70.2	29.8	4.41	6.28	4.4
18.5	1,224	2/3	do	2/3	do	3	8	98	20	54½	10 00	6 40	3 20	66.7	33.3	5.45	8.17	3.7
17.6	1,242	2/3	do	2/3	do	3	8	90	18	216¼	42 15	25 57	16 18	61.4	38.6	5.12	8.33	3.7
15.2	2,040	1/3	do	1/3	do	3	8	90	30	227¼	53 30	45 27	8 03	85.0	15.0	4.25	5.00	5.0
14.5	2,880	4½	do	5	do	3	8	98	40	49½	19 00	12 07	6 53	63.8	36.2	2.54	4.08	6.9
13.5	2,750	4½	do	4½	do	5	8	98	40	97	37 15	26 08	11 07	70.2	29.8	2.60	4.08	6.6
17.0	2,640	3½	do	3½	do	5	16	98	40	87½	31 30	23 34	7 56	75.1	24.9	2.77	4.08	6.6
13.5	2,860	4½	do	4½	do	3	9	98	40	46	13 45	11 16	2 29	81.9	18.1	3.35	4.08	6.6
13.5	2,730	4½	do	4½	do	5	10	98	40	30	11 00	7 21	3 39	66.8	33.2	2.77	4.08	6.6
13.5	2,750	4½	do	4½	do	5	8	98	40	95½	37 00	23 23	13 37	63.3	36.7	2.58	4.08	6.6
13.5	2,750	4½	do	4½	do	5	8	98	40	70	28 30	17 08	11 22	60.0	40.0	2.46	4.08	6.6
17.0	2,640	3½	do	3½	do	5	8	98	40	97½	38 00	23 53	14 07	62.7	37.3	2.57	4.08	6.6
13.5	2,640	4½	do	4½	do	5	8	98	40	112	38 00	27 26	10 34	72.2	27.8	2.95	4.08	6.6
13.5	2,730	4½	do	4½	do	5	8	98	40	64	37 00	15 40	21 20	42.3	57.7	1.73	4.08	6.6
13.5	2,750	4½	do	4½	do	5	8	98	40	104	38 00	25 28	12 32	67.0	33.0	2.76	4.08	6.6
13.5	2,640	4½	do	4½	do	5	8	98	40	58	20 00	14 12	5 48	71.0	29.0	2.90	4.08	6.6
13.5	2,750	4½	do	4½	do	5	8	98	40	120½	38 00	29 31	8 29	77.7	22.3	3.17	4.08	6.6
13.5	2,640	4½	do	4½	do	4	8	98	40	99½	32 30	24 22	8 08	75.0	25.0	3.06	4.08	6.6

18.5	2,640	4½	do	4½	do	4	8	98	40	90	29 00	22 02	6 58	76.0	24.0	3.10	4.08	6.6
22.7	1,962	1½	do	1½	do	4	11	94	27	144	37 30	24 49	12 41	66.2	33.8	3.84	5.80	5.07
23.0	1,962	1½	do	1½	do	4	11	94	27	152½	38 30	26 17	12 13	68.3	31.7	3.96	5.80	5.07
19.6	1,344	1/1½	do	1/1½	do	4	8	92	22	35	10 40	5 01	5 39	47.0	53.0	3.28	6.97	4.14
19.8	1,344	1/1½	do	1/1½	do	4	8	90	22	150	58 00	23 36	34 24	40.7	59.3	2.59	6.82	4.14
19.8	1,344	1/1½	do	1/1½	do	4	8	92	22	260	58 00	47 01	10 59	81.1	18.9	4.48	6.97	4.14
20.6	1,188	1/1½	do	1/1½	do	4	12	90	27	229	58 00	42 56	15 04	74.0	26.0	3.95	5.55	4.86
21.2	1,200	1/1½	do	1/1½	do	4	8	90	27	271	58 00	45 07	12 53	77.8	22.2	4.64	6.82	4.86
22.2	1,200	1/1½	do	1/1½	do	4	8	95	27	227	58 00	38 43	19 17	66.8	33.2	3.91	5.86	4.86
22.2	1,200	1/1½	do	1/1½	do	4	8	95	27	246½	58 00	44 55	13 05	77.4	22.6	4.25	5.36	4.86
20.5	1,200	1/1½	do	1/1½	do	4	8	95	27	275	58 00	46 53	11 07	80.8	19.2	4.74	5.86	4.86
20.5	1,188	1/1½	do	1/1½	do	5	12	95	27	158	36 40	26 56	9 44	73.5	26.5	4.31	5.86	4.86
20.4	1,260	1/1½	do	1/1½	do	4	8	95	27	157	58 00	26 46	31 14	46.2	53.8	2.71	5.86	4.86
20.5	1,200	1/1½	do	1/1½	do	4	16	86	27	226½	58 00	37 57	20 03	65.4	34.6	3.91	5.97	4.86
20.8	1,200	1/1½	do	1/1½	do	4	8	95	27	210	58 00	35 49	22 11	61.8	38.2	3.62	5.86	4.86
17.8	2,880	1/3½	do	1/3½	do	4	8	92	38	136	58 00	34 12	23 48	59.0	41.0	2.34	4.04	6.21
17.6	2,880	1/3½	do	1/3½	do	4	8	90	38	193½	58 00	49 01	8 59	84.5	15.5	3.34	3.95	6.21
17.8	2,880	1/3½	do	1/3½	do	4	8	90	38	189	58 00	47 53	10 07	82.6	17.4	3.26	3.95	6.21
18.0	2,880	1/3½	do	1/3½	do	4	8	95	38	165	58 00	36 32	21 28	63.0	37.0	2.84	4.17	6.21
17.6	2,880	1/3½	do	1/3½	do	4	8	90	38	173	58 00	43 50	14 10	75.6	24.4	2.98	3.95	6.21
18.0	2,880	1/3½	do	1/3½	do	4	8	95	38	209	58 00	50 10	7 50	86.5	13.5	3.60	4.17	6.21
18.2	2,880	1/3½	do	1/3½	do	4	8	90	38	106	58 00	27 22	30 38	47.2	52.8	1.86	3.95	6.21
18.2	2,880	1/3½	do	1/3½	do	4	8	95	38	165	58 00	40 08	17 52	69.2	30.8	2.84	4.17	6.21
17.8	2,880	1/3½	do	1/3½	do	5	8	95	38	184	58 00	44 10	13 50	76.2	23.8	3.17	4.17	6.21
17.8	2,880	1/3½	do	1/3½	do	4	8	95	38	188½	58 00	40 34	17 26	70.1	29.9	3.25	4.65	6.21
17.6	2,880	1/3½	do	1/3½	do	4	8	95	38	163½	58 00	39 14	18 46	67.7	32.3	2.82	4.17	6.21
18.0	2,880	1/3½	do	1/3½	do	4	8	86	38	152	58 00	37 46	20 14	65.1	34.9	2.62	4.02	6.21
17.6	2,880	1/3½	do	1/3½	do	4	8	90	38	158	58 00	40 01	17 59	70.0	30.0	2.72	3.95	6.21
18.0	2,880	1/3½	do	1/3½	do	4	8	95	38	149	58 00	36 11	21 49	62.4	37.6	2.57	4.17	6.21
18.0	2,880	1/3½	do	1/3½	do	4	8	92	38	208	58 00	51 33	6 27	88.9	11.1	2.59	4.04	6.21
21.8	1,292	2/3	do	2/2½	do	3	8	98	19	153½	24 00	17 52	6 08	74.4	25.6	6.40	8.60	3.7
19.0	1,292	2/3	do	2/2½	do	3	8	98	19	204½	36 30	23 47	12 43	65.2	34.8	5.60	8.60	3.7
14.1	1,800	1-3	do	1-3	do	5	8	100	30	97½	21 40	17 33	4 07	81.0	19.0	4.50	5.56	5.2
13.6	1,800	1-3	do	1-3	do	4	8	100	30	47½	13 50	8 33	5 17	61.8	38.2	3.43	5.56	5.2
14.0	2,100	1-3	do	1-3	do	5	8	100	30	47	12 50	8 28	4 22	65.9	34.1	3.66	5.56	5.2
13.8	1,800	1-3	do	1-3	do	4	8	100	30	48	10 00	8 38	1 22	86.4	13.6	4.80	5.56	5.2
13.9	1,800	1-3	do	1-3	do	4	8	95	30	48½	13 00	9 11	3 49	70.7	29.3	3.73	5.28	5.2
13.4	1,800	1-3	do	1-3	do	4	8	100	30	48½	10 50	8 44	2 06	80.6	19.4	4.48	5.56	5.2
13.3	2,016	1-3½	do	1-4	do	5	8	100	34	144	37 10	29 23	7 47	79.0	21.0	3.87	4.90	5.9
13.8	2,184	1-4	do	1-4	do	5	8	95	34	46	21 10	9 53	11 17	46.7	53.3	2.17	4.66	5.9
12.9	2,016	1-3½	do	1-4	do	4	8	100	34	48	12 00	9 47	2 13	81.6	18.4	4.00	4.90	5.9
13.6	2,352	1-3½	do	1-3½	do	4	8	100	34	94½	37 30	19 17	18 13	51.4	48.6	2.52	4.90	5.9
13.9	2,184	1-3½	do	1-4	do	4	8	100	34	94½	28 20	19 17	9 03	68.0	32.0	3.34	4.90	5.9
13.8	2,016	1-3½	do	1-4	do	4	8	100	34	133½	39 50	27 14	12 36	68.4	31.6	3.35	4.90	5.9
14.1	2,240	1-3½	do	1-4	do	4	8	100	34	137½	45 40	28 03	17 37	61.4	38.6	3.01	4.90	5.9
12.5	2,160	1-4½	do	1-4½	do	5	8	94	36	99	34 00	22 45	11 15	79.2	20.8	2.91	4.35	6.3
13.6	2,400	1-4½	do	1-4½	do	4	8	96	38	108	39 30	25 39	13 51	64.9	35.1	2.73	4.21	6.6
14.0	2,400	1-4½	do	1-4½	do	4	8	96	38	75	25 00	17 49	7 11	71.2	28.8	3.00	4.21	6.6
19.0	2,240	1-3	do	1-3	do	4	8	100	40	49½	15 50	11 53	3 57	75.0	25.0	3.13	4.17	7.0
21.1	3,000	1-3	do	1-3	do	5	12	100	44	49½	14 20	13 04	1 16	91.2	8.8	3.45	3.79	7.7
13.4	1,440	1-2½	do	1-2½	do	3	8	100	24	173	35 00	24 55	10 05	71.2	28.8	4.94	6.94	4.2
13.4	1,440	1-2½	do	1-2½	do	3	8	100	24	13	3 00	1 52	1 08	62.2	37.8	4.33	6.94	4.2
13.4	1,440	1-2½	do	1-2½	do	4	4	100	24	59¼	12 30	8 36	3 54	68.8	31.2	4.78	6.94	4.2

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

CASSIMERES—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.4	1,440	1-2¾	Woolen	1-2¾	Woolen	3	4	100	24	31	5 30	4 28	1 02	81.2	18.8	5.64	6.94	4.2
13.4	1,440	1-2¾	do	1-2¾	do	3	4	100	24	230¾	40 20	33 14	7 06	82.4	17.6	5.72	6.94	4.2
13.4	1,440	1-2¾	do	1-2¾	do	4	8	100	24	59½	11 10	8 34	2 36	76.7	23.3	5.33	6.94	4.2
13.4	1,440	1-2¾	do	1-2¾	do	3	4	100	24	225	39 40	32 24	7 16	81.7	18.3	5.67	6.94	4.2

FEMALE WEAVERS.

Weight per yard.	Number of ends.	Warp: Number of yarn. Ply and count or run.	Warp: Quality.	Filling: Number of yarn. Ply and count or run.	Filling: Quality.	Number of shuttles.	Number of harness.	Picks per minute.	Picks per inch.	Number of yards woven.	Total time of weaver (hours and minutes).	Actual time— Loom was producing.	Actual time— Lost in stoppages.	Per cent of total time— Loom was producing.	Per cent of total time— Lost in stoppages.	Yards woven per hour— Of total time.	Yards woven per hour— Of actual producing time.	Piece price per yard.
19.8	2,040	2½	Woolen	2½	Woolen	3	8	92	32	27	7 30	5 38	1 52	75.2	24.8	3.60	4.79	5.4
19.8	2,040	2½	do	2½	do	3	8	92	32	31	10 50	6 28	4 22	59.7	40.3	3.00	4.79	5.4
19.8	2,040	2½	do	2½	do	3	8	92	32	22	9 00	4 35	4 25	50.8	49.2	2.44	4.79	5.4
19.8	2,040	2½	do	2½	do	3	8	92	32	34	10 50	7 06	3 44	65.5	34.5	3.14	4.79	5.4
19.6	2,040	2½	do	2½	do	3	8	110	32	108	43 20	18 51	24 29	43.5	56.5	2.49	5.73	5.4
19.6	2,040	2½	do	2½	do	3	8	95	32	110	43 20	22 14	21 06	51.3	48.7	2.54	4.95	5.4
14.5	2,200	3½	do	3 1/16	do	3	8	95	34	119½	43 20	27 10	16 10	62.7	37.3	2.76	4.66	5.7
14.8	2,200	3½	do	3½	do	3	8	92	36	122	43 20	28 38	14 42	66.1	33.9	2.82	4.26	6.0
14.5	2,200	3½	do	3½	do	3	8	92	36	74	30 20	17 22	12 58	53.7	46.3	2.44	4.26	6.0
14.5	2,200	3½	do	3 1/16	do	3	8	95	36	101	38 30	22 58	15 32	59.6	40.4	2.62	4.40	6.0
13.5	2,352	4	do	4	do	5	8	92	38	63½	43 20	15 44	27 36	36.3	63.7	1.47	4.04	6.3
18.0	2,300	3	do	3⅛	do	3	8	92	38	37	16 20	9 10	7 10	56.1	43.9	2.27	4.04	6.3
13.5	2,352	4	do	4	do	3	8	95	38	27	8 50	6 29	2 21	73.4	26.6	3.06	4.17	6.3
18.0	2,300	3	do	3½	do	3	8	92	38	69	25 00	17 06	7 54	68.4	31.6	2.76	4.04	6.3
18.0	2,300	3	do	3½	do	3	8	92	38	136	43 20	33 42	9 38	78.1	21.9	3.14	4.04	6.3
13.5	2,352	4	do	4	do	3	8	92	38	90	26 00	22 18	3 42	85.8	14.2	3.46	4.04	6.3
18.0	2,300	3	do	3 1/16	do	3	8	110	38	49	16 20	10 10	6 10	62.2	37.8	3.00	4.82	6.3

18.0	2,300	3	.....do.........	3 1/16	.....do.........	3	8	110	38	64	32 30	13 16	19 14	40.8	59.2	1.97	4.83	6.3
13.5	2,352	4	.....do.........	4	.....do.........	3	8	95	38	19	8 00	4 34	3 26	57.1	42.9	2.38	4.17	6.3
13.5	2,352	4	.....do.........	4	.....do.........	3	8	95	38	109	38 20	26 10	12 10	63.3	36.7	2.84	4.17	6.3
13.5	2,352	4	.....do.........	4	.....do.........	5	12	95	38	68	26 00	16 19	9 41	62.7	37.3	2.62	4.17	6.3
13.5	2,352	4	.....do.........	4	.....do.........	3	8	95	38	63	21 30	15 07	6 23	70.3	29.7	2.93	4.17	6.3
14.5	2,760	4½	.....do.........	4½	.....do.........	3	8	92	42	39	18 20	10 41	7 39	58.3	41.7	2.18	3.65	6.8
14.8	2,760	4½	.....do.........	4½	.....do.........	3	8	92	42	108½	43 20	29 43	13 37	68.3	31.7	2.50	3.65	6.8
14.8	2,760	4½	.....do.........	4½	.....do.........	3	8	95	42	42	16 00	11 08	4 52	69.6	30.4	2.63	3.77	6.8
18.5	2,856	3½	.....do.........	3½	.....do.........	3	10	92	44	51	16 10	14 38	1 32	89.7	10.3	3.12	3.48	7.1
13.5	3,060	5 1/16	.....do.........	5½	.....do.........	3	8	92	50	69	43 20	22 30	20 50	51.9	48.1	1.59	3.07	7.9
13.5	3,060	5 1/16	.....do.........	5½	.....do.........	3	8	92	50	62½	27 10	20 23	6 47	74.6	25.4	2.29	3.07	7.9
13.5	3,060	5 1/16	.....do.........	5½	.....do.........	3	8	110	50	98	43 20	26 43	16 37	61.6	38.4	2.26	3.67	7.9
13.5	3,060	5 1/16	.....do.........	5½	.....do.........	3	8	95	50	81	43 20	25 35	17 45	59.1	40.9	1.87	3.17	7.9
13.5	3,060	5 1/16	.....do.........	5½	.....do.........	3	8	95	50	69½	32 30	21 57	10 33	67.5	32.5	2.14	3.17	7.9
13.5	3,060	5 1/16	.....do.........	5½	.....do.........	3	8	95	50	46	21 40	14 32	7 08	67.6	32.4	2.12	3.17	7.9
13.5	3,060	5 1/16	.....do.........	5½	.....do.........	3	8	95	50	68	37 00	21 38	15 22	57.7	42.3	1.84	3.17	7.9
12.1	2,688	1/4½	.....do.........	1/4½	.....do.........	5	10	100	40	38	10 10	9 07	1 03	89.7	10.3	3.74	4.17	7.0
12.1	2,688	1/4½	.....do.........	1/4½	.....do.........	5	10	100	40	115¾	44 00	27 47	16 13	63.1	36.9	2.63	4.17	7.0
12.1	2,688	1/4½	.....do.........	1/4½	.....do.........	5	8	100	40	107½	45 50	25 48	20 02	56.3	43.7	2.35	4.17	7.0
12.1	2,688	1/4½	.....do.........	1/4½	.....do.........	5	8	100	40	57	22 50	13 41	9 09	59.9	40.1	2.50	4.17	7.0
12.1	2,688	1/4½	.....do.........	1/4½	.....do.........	5	8	100	44	45	20 20	11 53	8 27	58.4	41.6	2.21	3.79	7.0
18.3	3,024	1/3½	.....do.........	1/3½	.....do.........	5	10	100	44	55	33 50	14 31	19 19	42.9	57.1	1.63	3.79	8.0
11.6	2,880	1/4½	.....do.........	1/4½	.....do.........	5	10	100	42	142¾	43 40	35 58	7 42	82.4	17.6	3.27	3.97	7.35
12.9	3,840	1/25	Worsted.......	1/4½	.....do.........	5	10	100	50	103¼	31 50	30 58	52	97.3	2.7	3.24	3.33	8.75
20.7	2,056	1/1½	Woolen	1/1½	.....do.........	4	8	94	26	155	37 30	25 43	11 47	68.6	31.4	4.13	6.08	4.86
20.1	1,712	1/1½	.....do.........	1/1½	.....do.........	5	13	94	26	48½	11 00	8 03	2 57	73.2	26.8	4.41	6.08	4.86
12.1	2,688	1/4½	.....do.........	1/4½	.....do.........	5	10	100	40	38	10 10	9 07	1 03	89.7	10.3	3.74	4.17	7.0
12.1	2,688	1/4½	.....do.........	1/4½	.....do.........	5	10	100	40	115¾	44 00	27 47	16 13	61.3	38.7	2.63	4.17	7.0
12.1	2,688	1/4½	.....do.........	1/4½	.....do.........	5	8	100	40	107½	45 50	25 48	20 02	56.3	43.7	2.35	4.17	7.0
12.1	2,688	1/4½	.....do.........	1/4½	.....do.........	5	8	100	40	57	22 50	13 41	9 09	59.9	40.1	2.50	4.17	7.0
11.6	2,880	1/4½	.....do.........	1/4½	.....do.........	5	10	100	42	142¾	43 40	35 58	7 42	82.4	17.6	3.27	3.97	7.35
18.3	3,024	1/3½	.....do.........	1/3½	.....do.........	5	10	100	44	45	20 20	11 53	8 27	58.4	41.6	2.18	3.79	8.0
18.3	3,024	1/3½	.....do.........	1/3½	.....do.........	5	10	100	44	55	33 50	14 31	19 19	42.9	57.1	1.68	3.79	8.0
17.6	2,520	3½	.....do.........	3½	.....do.........	3	15	96	48	65	23 40	19 30	4 10	82.4	17.6	2.74	3.33	7.7
13.2	2,550	4	.....do.........	4½	.....do.........	3	10	96	46	132	42 40	37 57	4 43	88.9	11.1	3.09	3.47	7.4
17.5	2,460	3½	.....do.........	3½	.....do.........	3	14	96	48	101	35 40	30 50	4 50	85.0	15.0	2.83	3.33	7.7
16.4	2,400	3½	.....do.........	3½	.....do.........	3	10	96	44	119	42 40	32 43	9 57	76.7	23.3	2.78	3.64	7.1
16.5	2,400	3½	.....do.........	3½	.....do.........	3	8	96	44	65	23 40	17 52	5 48	75.5	24.5	2.74	3.64	7.1
13.2	2,600	4	.....do.........	4½	.....do.........	3	10	96	44	77	27 20	21 10	6 10	77.4	22.6	2.81	3.64	7.1
13.2	3,240	5	.....do.........	6	.....do.........	3	9	96	54	75	42 40	25 19	17 21	59.3	40.7	1.75	2.96	8.4
13.2	3,240	5	.....do.........	6	.....do.........	3	8	96	54	16	10 40	5 24	5 16	50.6	49.4	1.50	2.96	8.4
17.4	2,500	3½	.....do.........	3½	.....do.........	5	9	96	44	32	10 40	8 48	1 52	82.5	17.5	3.00	3.63	7.1
13.4	2,400	4	.....do.........	4½	.....do.........	4	8	90	46	120	42 40	36 48	5 52	86.2	13.8	2.81	3.96	7.4
19.0	1,920	2½	.....do.........	2½	.....do.........	3	8	90	32	31	10 40	6 37	4 03	62.0	38.0	2.90	4.69	5.4
16.5	2,400	3½	.....do.........	3½	.....do.........	3	6	90	44	34	10 40	9 58	42	93.4	6.6	3.18	3.41	7.1
16.4	2,450	3½	.....do.........	3½	.....do.........	3	14	96	44	113½	35 40	31 13	4 27	87.5	12.5	3.18	3.64	7.1
13.0	2,925	5	.....do.........	6	.....do.........	3	11	96	54	84	37 30	28 37	8 53	77.2	22.8	2.24	2.96	8.4
16.5	2,400	3½	.....do.........	3½	.....do.........	3	8	96	44	69	22 40	18 58	3 42	83.7	16.3	3.04	3.64	7.1
13.0	2,880	5	.....do.........	6	.....do.........	3	12	96	54	82	32 00	27 40	4 20	86.5	13.5	2.56	2.96	8.4
12.5	2,400	4	.....do.........	4½	.....do.........	3	8	96	44	51	18 00	14 01	3 59	77.9	22.1	2.83	3.64	7.1
16.5	2,400	3½	.....do.........	3½	.....do.........	4	8	96	44	36	14 40	9 54	4 46	67.5	32.5	2.45	3.64	7.1
13.5	2,700	4½	.....do.........	4½	.....do.........	4	10	98	40	98	33 00	24 00	9 00	72.7	27.3	2.97	4.08	6.6
13.5	2,700	4½	.....do.........	4½	.....do.........	4	12	98	40	64	24 00	15 40	8 20	64.2	35.8	2.67	4.08	6.6

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

CASSIMERES—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.5	2,760	4½	Woolen	4½	Woolen	5	12	98	40	109½	34 00	26 49	7 11	78.9	21.1	3.22	4.08	6.6
13.5	2,760	4½	do	4½	do	5	12	98	40	77¾	34 30	18 59	15 31	55.0	45.0	2.25	4.08	6.6
13.5	2,750	4½	do	4½	do	5	8	98	40	89½	33 30	21 55	11 35	65.4	34.6	2.67	4.08	6.6
13.5	2,860	4½	do	4½	do	3	9	98	40	111	34 30	24 43	9 47	70.5	29.5	3.18	4.08	6.6
13.5	2,760	4½	do	4½	do	5	12	98	40	50	19 00	12 15	6 45	64.4	35.6	2.63	4.08	6.6
13.5	2,640	4½	do	4½	do	5	8	98	40	101	34 00	24 44	9 16	72.7	27.3	2.97	4.08	6.6
18.8	1,420	2/3	do	2/3	do	3	8	98	18	182¾	35 00	20 08	14 52	57.5	42.5	2.50	9.07	3.7
18.8	1,420	2/3	do	2/3	do	3	8	98	18	90¼	15 30	9 57	5 33	64.2	35.8	5.82	9.07	3.7
19.0	1,420	2/3	do	2/3	do	3	8	98	18	92¾	15 00	10 13	4 47	68.1	31.9	6.18	9.07	3.7
18.5	1,224	2/3	do	2/3	do	3	8	90	20	89¼	14 30	11 54	2 36	82.1	17.9	6.16	7.50	3.7
19.0	1,420	2/3	do	2/3	do	3	8	90	18	92	27 00	11 02	15 58	40.9	59.1	3.41	8.33	3.7
18.6	1,656	2/3	do	2/3	do	3	8	90	18	139	31 00	16 41	14 19	53.8	46.2	4.48	8.33	3.7
19.0	1,420	2/3	do	2/3	do	3	8	90	18	44½	9 00	5 20	3 40	59.3	40.7	4.33	6.82	3.7
13.4	1,656	1/2¼	do	1/3	do	4	8	98	27	238	40 00	39 20	40	98.4	1.6	5.95	6.05	4.6
13.4	2,400	1/3½	do	1/3½	do	3	8	92	34	168¾	42 50	37 25	5 25	87.4	12.6	3.94	4.51	3.85
13.4	2,400	1/3½	do	1/3½	do	3	8	96	34	198½	47 50	42 37	5 13	89.1	10.9	4.15	4.66	3.85
13.4	2,400	1/3½	do	1/3½	do	3	8	100	34	135¼	36 50	27 36	9 14	74.9	25.1	3.67	4.90	3.85
13.4	2,593	1/3½	do	1/3½	do	3	8	100	34	112	32 00	22 51	9 09	71.4	28.6	3.50	4.90	3.85
13.4	1,440	1/2½	do	1/2½	do	3	8	92	34	47	14 50	10 25	4 25	70.2	29.8	3.17	4.51	4.2
13.4	1,440	1/2½	do	1/2½	do	4	8	92	34	94	32 30	20 50	11 40	64.1	35.9	2.89	4.51	4.2
13.2	2,400	1/3½	do	1/3½	do	3	8	92	34	87½	38 30	19 20	19 10	50.2	49.8	2.27	4.51	3.85
13.4	2,400	1/3½	do	1/3½	do	3	8	100	34	93	32 20	18 58	13 22	58.7	41.3	2.88	4.90	3.85
13.4	2,380	1/3½	do	1/3½	do	3	12	100	34	46¾	14 20	9 32	4 48	66.5	33.5	3.26	4.90	3.85
13.4	1,440	1/2½	do	1/2½	do	3	4	100	24	108½	21 20	15 36	5 44	73.1	26.9	5.09	6.94	4.2
13.4	1,440	1/2½	do	1/2½	do	3	8	100	24	56	9 40	8 04	1 36	83.4	16.6	5.79	6.94	4.2
13.4	1,440	1/2½	do	1/2½	do	3	4	100	24	185½	35 10	26 43	8 27	76.0	24.0	5.27	6.94	4.2

13.4	1,440	1/2	....do.........	1/2	....do........	3	8	100	24	107½	22 20	15 26	6 54	69.1	30.9	4.80	6.94	4.2
13.4	1,440	1/2	....do.........	1/2	....do........	3	4	100	24	170½	27 30	24 33	2 57	89.3	10.7	6.20	6.94	4.2
13.4	1,440	1/2	....do.........	1/2	....do........	4	4	100	24	42	7 30	6 03	1 27	80.7	19.3	5.60	6.94	4.2
13.4	1,440	1/2	....do.........	1/2	....do........	3	8	100	24	58½	13 10	8 25	4 45	63.9	36.1	4.44	6.94	4.2
13.4	1,440	1/2	....do.........	1/2	....do........	4	4	100	24	174½	34 40	25 10	9 30	72.6	27.4	5.04	6.94	4.2
13.4	1,440	1/2	....do.........	1/2	....do........	4	10	100	24	213½	41 20	30 42	10 38	74.3	25.7	5.16	6.94	4.2
13.4	1,440	1/2	....do.........	1/2	....do........	4	4	100	24	129½	30 30	18 40	11 50	61.2	38.8	4.25	6.94	4.2
18.8	1,920	1/2	....do.........	1/2	....do........	3	8	100	30	85	23 20	15 18	8 02	65.5	34.5	3.64	5.56	5.5
13.4	2,380	1/3	....do.........	1/3	....do........	4	8	100	34	62	22 30	12 39	9 51	56.2	43.8	2.76	4.90	3.85
21.0	1,688	1/1	....do.........	1/1	....do........	4	8	94	27	105½	21 00	18 11	2 49	86.6	13.4	5.02	5.80	5.07
22.8	1,440	1	....do.........	1	....do........	4	8	95	22	246½	58 00	36 32	21 28	63.0	37.0	4.25	6.75	5.17
20.0	1,344	1	....do.........	1	....do........	4	8	90	22	149	52 20	23 13	29 07	44.3	55.7	2.85	6.42	4.14
20.5	1.188	1	....do.........	1	....do........	4	12	90	27	223½	58 00	40 14	17 46	69.4	30.6	3.85	5.56	4.86
21.0	1,188	1	....do.........	1	....do........	4	8	90	27	188½	58 00	33 56	24 04	58.5	41.5	3.25	5.56	4.86
18.0	2,880	1	....do.........	1	....do........	4	12	95	27	242½	58 00	43 43	14 17	75.4	24.6	4.18	5.55	4.86
22.0	1,188	1	....do.........	1	....do........	4	12	92	27	242	58 00	42 37	15 23	73.5	26.5	4.17	5.68	4.86
20.3	1,188	1	....do.........	1	....do........	4	12	86	27	194	58 00	37 29	20 31	64.6	35.4	3.34	5.18	4.86
17.8	2,880	3	....do.........	3	....do........	4	8	90	38	195	58 00	49 24	8 36	85.2	14.8	3.30	3.95	6.21
17.8	2,880	3	....do.........	3	....do........	4	8	90	38	173	58 00	43 50	14 10	75.6	24.4	2.98	3.95	6.21
18.0	2,880	3	....do.........	3	....do........	4	8	95	38	185	58 00	44 24	13 36	76.6	23.4	3.19	4.17	6.21
17.8	2,880	3	....do.........	3	....do........	4	8	95	38	164	58 00	39 22	18 38	67.9	32.1	2.83	4.17	6.21
18.2	2,880	3	....do.........	3	....do........	5	8	95	38	202	58 00	48 29	9 31	83.6	16.4	3.48	4.17	6.21
17.8	2,880	3	....do.........	3	....do........	4	8	95	38	170	58 00	40 48	17 12	70.3	29.7	2.93	4.17	6.21
17.0	2,880	3	....do.........	3	....do........	5	8	95	38	198	58 00	47 31	10 29	81.9	18.1	3.41	4.17	6.21
14.0	1,800	3	....do.........	3	....do........	4	8	100	30	143	33 20	25 44	7 36	77.2	22.8	4.29	5.56	5.2
14.2	1,845	3	....do.........	3	....do........	4	8	95	30	47	14 20	8 55	5 25	62.2	37.8	3.28	5.28	5.2
13.8	1,800	3	....do.........	3	....do........	5	8	100	30	47½	10 50	8 33	2 17	79.3	20.7	4.38	5.56	5.2
14.3	1,800	3	....do.........	3	....do........	4	8	95	30	46	11 50	8 43	3 07	78.7	26.3	3.89	5.28	5.2
14.6	1,800	3	....do.........	3	....do........	4	8	95	30	55½	11 00	10 31	29	95.6	4.4	5.06	5.28	5.2
15.0	1,980	2½	....do.........	2½	....do........	4	8	98	34	125	52 00	26 01	25 59	50.0	50.0	2.40	4.80	5.9
13.7	2,240	3	....do.........	4	....do........	4	8	100	34	140	33 10	28 34	4 36	86.1	13.9	4.22	4.90	5.9
13.5	2,352	3	....do.........	4	....do........	4	8	95	34	187½	47 50	40 16	7 34	84.2	15.8	3.92	4.66	5.9
13.2	2.016	3	....do.........	4	....do........	4	8	95	34	97	25 50	20 50	5 00	80.6	19.4	3.75	4.66	5.9
14.0	2,400	4	....do.........	4	....do........	4	8	98	38	148	54 10	34 26	19 44	63.6	36.4	2.73	4.30	6.6
13.6	2,400	4	....do.........	4	....do........	4	8	98	38	103	32 30	23 58	8 32	73.7	26.3	3.17	4.30	6.6
13.3	2,400	4	....do.........	4	....do........	4	8	96	38	40	12 00	9 30	2 30	79.2	20.8	3.33	4.21	6.6
12.8	2,016	3	....do.........	5	....do........	4	8	95	40	49	13 00	12 23	37	95.2	4.8	3.77	3.96	7.0
14.0	2,610	4	....do.........	4	....do........	4	10	96	42	145	50 00	38 04	11 56	76.1	23.9	2.90	3.81	7.0
14.9	3,000	5	....do.........	5	....do........	4	10	100	46	51	21 40	14 05	7 35	65.0	35.0	2.35	3.62	8.0
16.3	3,072	5	....do.........	5	....do........	5	8	100	50	98	37 50	29 24	8 26	77.7	22.3	2.59	3.33	8.7
16.5	3,000	5	....do.........	5	....do........	5	12	100	52	48	18 50	14 59	3 51	79.5	20.5	2.55	3.21	9.1
15.8	3,000	5	....do.........	5	....do........	4	8	95	52	50½	32 00	16 35	15 25	51.8	48.2	1.58	3.04	9.1
13.6	2,400	4	....do.........	4	....do........	4	8	96	38	168	50 00	39 54	10 06	79.8	20.2	3.36	4.21	6.6
16.0	1,742	2/3	....do.........	2/3	....do........	3	8	90	28	187½	34 00	25 40	8 20	75.5	24.5	4.04	5.36	4.7
15.0	2,160	3	....do.........	3	....do........	4	10	98	34	176	40 20	36 38	3 42	90.8	9.2	4.36	4.80	6.75
14.5	2,160	3	....do.........	3	....do........	4	8	98	34	159½	40 20	33 12	7 08	82.3	17.7	3.95	4.80	6.5
14.8	2,052	3	....do.........	3	....do........	4	8	97	34	144½	40 20	30 23	9 57	75.3	24.7	3.58	4.75	6.5
14.7	2,268	3	....do.........	3	....do........	4	16	97	34	17½	4 35	3 41	54	80.3	19.7	3.82	4.75	6.5
13.5	2,160	3	....do.........	3	....do........	4	8	97	34	90½	31 00	21 02	9 58	67.8	32.2	2.92	4.75	6.5
15.0	2,200	3	....do.........	3	....do........	4	8	97	34	21½	5 20	4 34	46	85.6	14.4	4.08	4.75	6.5
15.8	2,160	3	....do.........	3	....do........	4	7	97	34	22	5 10	4 38	32	89.7	10.3	4.26	4.75	6.5

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

CASSIMERES—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
											Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.			Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.5	2,760	4½	Woolen	4¼	Woolen	5	12	98	40	109½	34 00	26 49	7 11	78.9	21.1	3.22	4.08	6.6
13.5	2,760	4½	do	4¼	do	5	12	98	40	77½	34 30	18 59	15 31	55.0	45.0	2.25	4.08	6.6
13.5	2,750	4½	do	4¼	do	5	8	98	40	89½	33 30	21 55	11 35	65.4	34.6	2.67	4.08	6.6
13.5	2,860	4½	do	4¼	do	3	9	98	40	111	34 30	24 43	9 47	70.5	29.5	3.18	4.08	6.6
13.5	2,760	4½	do	4¼	do	5	12	98	40	50	19 00	12 15	6 45	64.4	35.6	2.63	4.08	6.6
13.5	2,640	4½	do	4¼	do	5	8	98	40	101	34 00	24 44	9 16	72.7	27.3	2.97	4.08	6.6
18.8	1,420	2/3	do	2/3	do	3	8	98	18	182¾	35 00	20 08	14 52	57.5	42.5	2.59	9.07	3.7
18.8	1,420	2/3	do	2/3	do	3	8	98	18	90¼	15 30	9 57	5 33	64.2	35.8	5.82	9.07	3.7
19.0	1,420	2/3	do	2/3	do	3	8	98	18	92¾	15 00	10 13	4 47	68.1	31.9	6.18	9.07	3.7
18.5	1,224	2/3	do	2/3	do	3	8	90	20	89½	14 30	11 54	2 36	82.1	17.9	6.16	7.50	3.7
19.0	1,420	2/3	do	2/3	do	3	8	90	18	92	27 00	11 02	15 58	40.9	59.1	3.41	8.33	3.7
18.6	1,656	2/3	do	2/3	do	3	8	90	18	139	31 00	16 41	14 19	53.8	46.2	4.48	8.33	3.7
19.0	1,420	2/3	do	2/3	do	3	8	90	18	44⅓	9 00	5 20	3 40	59.3	40.7	4.33	6.82	3.7
13.4	1,656	1/2¼	do	1/3	do	4	8	98	27	238	40 00	39 20	40	98.4	1.6	5.95	6.05	4.6
13.4	2,400	1/3[illegible]	do	1/3[illegible]	do	3	8	92	34	168¾	42 50	37 25	5 25	87.4	12.6	3.94	4.51	3.85
13.4	2,400	1/3[illegible]	do	1/3[illegible]	do	3	8	95	34	198¼	47 50	42 37	5 13	89.1	10.9	4.15	4.66	3.85
13.4	2,400	1/3[illegible]	do	1/3[illegible]	do	3	8	100	34	135¼	36 50	27 36	9 14	74.9	25.1	3.67	4.90	3.85
13.4	2,593	1/3[illegible]	do	1/3[illegible]	do	3	8	100	34	112	32 00	22 51	9 09	71.4	28.6	3.50	4.90	3.85
13.4	1,440	1/2[illegible]	do	1/2[illegible]	do	3	8	92	34	47	14 50	10 25	4 25	70.2	29.8	3.17	4.51	4.2
13.4	1,440	1/2[illegible]	do	1/2[illegible]	do	4	8	92	34	94	32 30	20 50	11 40	64.1	35.9	2.89	4.51	4.2
13.2	2,400	1/3[illegible]	do	1/3[illegible]	do	3	8	92	34	87½	38 30	19 20	19 10	50.2	49.8	2.27	4.51	3.85
13.4	2,400	1/3[illegible]	do	1/3[illegible]	do	3	8	100	34	93	32 20	18 58	13 22	58.7	41.3	2.88	4.90	3.85
13.4	2,880	1/3[illegible]	do	1/3[illegible]	do	3	12	100	34	46¾	14 20	9 32	4 48	66.5	33.5	3.26	4.90	3.85
13.4	1,440	1/2[illegible]	do	1/2[illegible]	do	3	4	100	24	108¾	21 20	15 36	5 44	73.1	26.9	5.09	6.94	4.2
13.4	1,440	1/2[illegible]	do	1/2[illegible]	do	3	8	100	24	56	9 40	8 04	1 36	83.4	16.6	5.79	6.94	4.2
13.4	1,440	1/2[illegible]	do	1/2[illegible]	do	3	4	100	24	185¼	35 10	26 43	8 27	76.0	24.0	5.27	6.94	4.2

13.4	1,440	1/2	.....do.........	1/2	.....do.........	3	8	100	24	107½	22 20	15 26	6 54	69.1	30.9	4.80	6.94	4.2
13.4	1,440	1/2	.....do.........	1/2	.....do.........	3	4	100	24	170½	27 30	24 33	2 57	89.3	10.7	6.20	6.94	4.2
13.4	1,440	1/2	.....do.........	1/2	.....do.........	4	4	100	24	42	7 30	6 03	1 27	80.7	19.3	5.60	6.94	4.2
13.4	1,440	1/2	.....do.........	1/2	.....do.........	3	8	100	24	58½	13 10	8 25	4 45	63.9	36.1	4.44	6.94	4.2
13.4	1,440	1/2	.....do.........	1/2	.....do.........	4	4	100	24	174½	34 40	25 10	9 30	72.6	27.4	5.04	6.94	4.2
13.4	1,440	1/2	.....do.........	1/2	.....do.........	4	10	100	24	213½	41 20	30 42	10 38	74.3	25.7	5.16	6.94	4.2
13.4	1,440	1/2	.....do.........	1/2	.....do.........	4	4	100	24	129½	30 30	18 40	11 50	61.2	38.8	4.25	6.94	4.2
18.8	1,920	1/2	.....do.........	1/2	.....do.........	3	8	100	30	85	23 20	15 18	8 02	65.5	34.5	3.64	5.56	5.5
13.4	2,380	1/3	.....do.........	1/3	.....do.........	4	8	100	34	62	22 30	12 39	9 51	56.2	43.8	2.76	4.90	3.85
21.0	1,688	1/1	.....do.........	1/1	.....do.........	4	8	94	27	105½	21 00	18 11	2 49	86.6	13.4	5.02	5.80	5.07
22.8	1,440	1½	.....do.........	1½	.....do.........	4	8	95	22	246½	58 00	36 32	21 28	63.0	37.0	4.25	6.75	5.17
20.0	1,344	1½	.....do.........	1½	.....do.........	4	8	90	22	149	52 20	23 13	29 07	44.3	55.7	2.85	6.42	4.14
20.5	1,188	1½	.....do.........	1½	.....do.........	4	12	90	27	223½	58 00	40 14	17 46	69.4	30.6	3.85	5.56	4.86
21.0	1,188	1½	.....do.........	1½	.....do.........	4	8	90	27	188½	58 00	33 56	24 04	58.5	41.5	3.25	5.56	4.86
18.0	2,880	1½	.....do.........	1½	.....do.........	4	12	95	27	242½	58 00	43 43	14 17	75.4	24.6	4.18	5.55	4.86
22.0	1,188	1½	.....do.........	1½	.....do.........	4	12	92	27	242	58 00	42 37	15 23	73.5	26.5	4.17	5.68	4.86
20.3	1,188	1½	.....do.........	1½	.....do.........	4	12	86	27	194	58 00	37 29	20 31	64.6	35.4	3.34	5.18	4.86
17.8	2,880	3½	.....do.........	3½	.....do.........	4	8	90	38	195	58 00	49 24	8 36	85.2	14.8	3.36	3.95	6.21
17.8	2,880	3½	.....do.........	3½	.....do.........	4	8	90	38	178	58 00	43 50	14 10	75.6	24.4	2.98	3.95	6.21
18.0	2,880	3½	.....do.........	3½	.....do.........	4	8	95	38	185	58 00	44 24	13 36	76.6	23.4	3.19	4.17	6.21
17.8	2,880	3½	.....do.........	3½	.....do.........	4	8	95	38	164	58 00	39 22	18 38	67.9	32.1	2.83	4.17	6.21
18.2	2,880	3½	.....do.........	3½	.....do.........	5	8	95	38	202	58 00	48 29	9 31	83.6	16.4	3.48	4.17	6.21
17.8	2,880	3½	.....do.........	3½	.....do.........	4	8	95	38	170	58 00	40 48	17 12	70.3	29.7	2.93	4.17	6.21
17.0	2,880	3½	.....do.........	3½	.....do.........	5	8	95	38	198	58 00	47 31	10 29	81.9	18.1	3.41	4.17	6.21
14.0	1,800	3	.....do.........	3	.....do.........	4	8	100	30	143	33 20	25 44	7 36	77.2	22.8	4.29	5.56	5.2
14.2	1,845	3	.....do.........	3	.....do.........	4	8	95	30	47	14 20	8 55	5 25	62.2	37.8	3.28	5.28	5.2
13.8	1,800	3	.....do.........	3	.....do.........	5	8	100	30	47½	10 50	8 33	2 17	79.3	20.7	4.38	5.56	5.2
14.3	1,800	3	.....do.........	3	.....do.........	4	8	95	30	46	11 50	8 43	3 07	73.7	26.3	3.89	5.28	5.2
14.6	1,800	3	.....do.........	3	.....do.........	4	8	95	30	55½	11 00	10 31	29	95.6	4.4	5.06	5.28	5.2
15.0	1,980	2½	.....do.........	2½	.....do.........	4	8	98	34	125	52 00	26 01	25 59	50.0	50.0	2.40	4.80	5.9
13.7	2,240	3½	.....do.........	4	.....do.........	4	8	100	34	140	33 10	28 34	4 36	86.1	13.9	4.22	4.90	5.9
13.5	2,352	3½	.....do.........	4	.....do.........	4	8	95	34	187½	47 50	40 16	7 34	84.2	15.8	3.92	4.66	5.9
13.2	2.016	3½	.....do.........	4	.....do.........	4	8	95	34	97	25 50	20 50	5 00	80.6	19.4	3.75	4.66	5.9
14.0	2,400	4½	.....do.........	4½	.....do.........	4	8	98	38	148	54 10	34 26	19 44	63.6	36.4	2.73	4.30	6.6
13.6	2,400	4½	.....do.........	4½	.....do.........	4	8	98	38	103	32 30	23 58	8 32	73.7	26.3	3.17	4.30	6.6
13.3	2,400	4½	.....do.........	4½	.....do.........	4	8	96	38	40	12 00	9 30	2 30	79.2	20.8	3.33	4.21	6.6
12.8	2,016	3½	.....do.........	5½	.....do.........	4	8	95	40	49	13 00	12 23	37	95.2	4.8	3.77	3.96	7.0
14.0	2,610	4½	.....do.........	4½	.....do.........	4	10	96	42	145	50 00	38 04	11 56	76.1	23.9	2.90	3.81	7.0
14.9	3,000	5	.....do.........	5½	.....do.........	4	10	100	46	51	21 40	14 05	7 35	65.0	35.0	2.35	3.62	8.0
16.3	3,072	5	.....do.........	5½	.....do.........	5	8	100	50	98	37 50	29 24	8 26	77.7	22.3	2.59	3.33	8.7
16.5	3,000	5	.....do.........	5½	.....do.........	5	12	100	52	48	18 50	14 59	3 51	79.5	20.5	2.55	3.21	9.1
15.8	3,000	5½	.....do.........	5½	.....do.........	4	8	95	52	50½	32 00	16 35	15 25	51.8	48.2	1.58	3.04	9.1
13.6	2,400	4½	.....do.........	4½	.....do.........	4	8	96	38	168	50 00	39 54	10 06	79.8	20.2	3.36	4.21	6.6
16.0	1,742	2/3	.....do.........	2/3	.....do.........	3	8	90	28	137½	34 00	25 40	8 20	75.5	24.5	4.04	5.36	4.7
15.0	2,160	3½	.....do.........	3½	.....do.........	4	10	98	34	176	40 20	36 38	3 42	90.8	9.2	4.36	4.80	6.75
14.5	2.160	3½	.....do.........	3½	.....do.........	4	8	98	34	159½	40 20	33 12	7 08	82.3	17.7	3.95	4.80	6.5
14.8	2,052	3½	.....do.........	3½	.....do.........	4	8	97	34	144½	40 20	30 23	9 57	75.3	24.7	3.58	4.75	6.5
14.7	2,268	3½	.....do.........	3½	.....do.........	4	16	97	34	17½	4 35	3 41	54	80.3	19.7	3.82	4.75	6.5
13.5	2,160	3½	.....do.........	3½	.....do.........	4	8	97	34	90½	31 00	21 02	9 58	67.8	32.2	2.92	4.75	6.5
15.0	2,200	3½	.....do.........	3½	.....do.........	4	8	97	34	21½	5 20	4 34	46	85.6	14.4	4.08	4.75	6.5
15.8	2,160	3½	.....do.........	3½	.....do.........	4	7	97	34	22	5 10	4 38	32	89.7	10.3	4.26	4.75	6.5

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

CASSIMERES—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
14.9	2,268	3½	Woolen	3½	Woolen	4	16	97	34	117	38 20	24 37	13 43	67.4	32.6	3.05	4.75	6.5
14.9	2,160	3½	do	3½	do	4	8	97	34	58¼	14 10	12 15	1 55	86.5	13.5	4.11	4.75	6.5
13.0	2,304	4½	do	4	do	4	13	96	36	35	13 55	7 53	6 02	56.6	43.4	2.51	4.44	7.0
13.1	2,304	4	do	4	do	4	13	93	36	95¼	40 20	22 07	18 13	54.8	45.2	2.36	4.31	6.75
18.5	2,443	2¾	do	2¾	do	4	10	96	42	51	23 40	12 23	11 17	56.6	43.4	2.15	3.81	7.5
13.8	2,592	4	do	4½	do	4	8	110	44	59¼	28 25	14 13	14 12	50.8	49.2	2.12	4.17	7.75
14.3	2,592	4½	do	4	do	4	12	110	44	124½	40 20	29 53	10 27	74.1	25.9	3.09	4.17	7.75
14.3	2,592	4	do	4½	do	4	8	108	44	106¾	33 55	26 05	7 50	76.9	23.1	3.15	4.09	7.75
14.4	2,700	4	do	4½	do	4	10	108	44	58½	20 50	14 18	6 32	68.6	31.4	2.81	4.09	7.75
14.2	2,600	4	do	4½	do	4	14	108	44	48	19 05	11 44	7 21	61.5	38.5	2.52	4.09	7.75
14.1	2,592	4	do	4½	do	4	18	98	44	116	40 20	31 15	8 65	77.5	22.5	2.88	3.71	7.75
14.3	2,592	4	do	4½	do	4	12	96	44	118¼	40 20	31 55	8 25	79.1	20.9	2.94	3.71	7.75
14.1	2,700	4	do	4½	do	4	8	98	44	123	40 20	33 08	7 12	82.1	17.9	3.05	3.71	7.75
14.5	2,592	4	do	4½	do	4	16	98	44	99	35 00	26 40	8 20	76.2	23.8	2.83	3.71	7.75
13.6	2,592	4½	do	4½	do	4	16	97	44	55¼	24 30	15 02	9 28	61.4	38.6	2.26	3.67	6.75
14.0	2,628	4	do	4½	do	4	16	98	44	54	30 15	14 33	15 42	48.1	51.9	1.79	3.71	7.75
14.2	2,592	4	do	4½	do	4	10	95	44	34½	14 45	9 35	5 10	65.0	35.0	2.34	3.60	7.75
14.3	2,592	4	do	4½	do	4	16	97	44	54½	24 40	14 50	9 50	60.1	39.9	2.21	3.67	7.75
14.3	2,592	4	do	4½	do	4	8	98	44	55½	26 20	17 25	8 55	66.2	33.8	2.10	3.71	7.75

24.56	1,860	1-1½	.....do.........	1-1½	.....do........	5	8	90	24	272½	58 00	43 36	14 24	75.17	24.83	4.70	6.25	5.17
24.56	1,860	1-1½	.....do.........	1-1½	.....do........	5	8	90	24	45	9 20	7 20	2 00	77.15	22.85	4.82	6.25	5.17
24.56	1,860	1-1½	.....do.........	1-1½	.....do........	5	8	90	24	27	5 30	4 19	1 11	78.5	21.5	4.91	6.25	5.17
24.98	1,852	1-1½	.....do.........	1-1½	.....do........	5	9	90	26	124	27 00	21 29	5 31	79.59	20.41	4.59	5.77	5.61
24.98	1,852	1-1½	.....do.........	1-1½	.....do........	5	9	90	26	181	34 50	31 22	3 28	90.06	9.94	5.20	5.77	5.61
24.98	1,852	1-1½	.....do.........	1-1½	.....do........	5	8	90	26	47	19 30	12 05	7 25	77.62	22.38	4.48	5.77	5.61
24.98	1,852	1-1½	.....do.........	1-1½	.....do........	5	9	90	26	94	24 50	16 17	8 33	65.60	34.40	3.79	5.77	5.61
24.98	1,852	1-1½	.....do.........	1-1½	.....do........	5	9	90	26	36	7 45	6 14	1 31	80.52	19.48	4.65	5.77	5.61
24.98	1,852	1-1½	.....do.........	1-1½	.....do........	5	8	90	26	61	13 20	10 35	2 45	79.3	20.7	4.58	5.77	5.61
24.85	1,820	1-1½	.....do.........	1-1½	.....do........	5	8	90	26	41	10 00	7 07	2 53	71.1	28.9	4.10	5.77	5.61
25.12	1,860	1-1½	.....do.........	1-1½	.....do........	5	8	90	26	217½	58 00	37 42	20 18	65.0	35.0	3.77	5.77	5.61
25.14	1,836	1-1½	.....do.........	1-1½	.....do........	5	8	90	26	251½	51 30	43 35	7 55	84.6	15.4	4.88	5.77	5.61
24.98	1,852	1-1½	.....do.........	1-1½	.....do........	5	8	90	26	198½	50 15	34 25	15 50	68.5	31.5	3.95	5.77	5.61
24.46	1,852	1-1½	.....do.........	1-1½	.....do........	5	8	90	26	143½	30 45	24 52	5 53	80.9	19.1	4.67	5.77	5.61
26.59	1,788	2-3	.....do.........	2-3	.....do........	5	6	90	27	198½	46 45	35 44	11 01	77.22	22.78	4.29	5.56	5.83
26.59	1,788	2-3	.....do.........	2-3	.....do........	5	6	90	27	26½	6 45	4 46	1 59	70.7	29.3	3.93	5.56	5.83
24.69	2,940	1-2½	.....do.........	1-2½	.....do........	5	12	100	42	31½	13 40	7 56	5 44	58.10	41.90	2.27	3.97	7.7
24.50	2,940	1-2½	.....do.........	1-2½	.....do........	5	15	100	42	184	55 45	46 22	9 23	83.2	16.8	3.30	3.97	7.7
24.69	2,940	1-2½	.....do.........	1-2½	.....do........	5	20	100	44	103½	43 30	27 19	16 11	62.8	37.2	2.38	3.79	7.7
25.40	3,948	1-3½	.....do.........	1-3¾ 1-2	....do........	4	16	100	50	147	56 00	44 06	11 54	78.75	21.25	2.63	3.33	8.8
25.40	3,948	1-3½	.....do.........	1-3¾ 1-2	....do........	4	16	100	50	74½	41 00	22 21	18 39	54.51	45.49	1.82	3.33	8.8
25.40	3,948	1-3½	.....do.........	1-3¾ 1-2	....do........	4	18	100	50	129½	55 30	38 51	16 39	70.0	30.0	2.33	3.33	9.3
25.40	3,948	1-3½	.....do.........	1-3¾ 1-2	....do........	4	18	100	50	139½	56 10	41 51	14 19	74.5	25.5	2.48	3.33	9.3
24.90	3,908	1-3½	.....do.........	1-3¾ 1-2	....do........	4	26	100	50	118	42 30	35 24	7 06	83.3	16.7	2.78	3.33	9.3
25.40	3,948	1-3½	.....do.........	1-3½ 1-2	....do........	4	16	100	50	157	58 00	47 06	10 54	81.2	18.8	2.71	3.33	8.8
25.40	3,948	1-3½	.....do.........	1-3¾ 1-2	....do........	4	16	100	50	87	32 45	26 06	6 39	76.7	23.3	2.66	3.33	8.8
25.13	3,948	1-3½	.....do.........	1-3¾ 1-2	....do........	4	20	100	50	116½	58 00	34 57	23 03	60.26	39.74	2.01	3.33	9.3

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

FANCY CHEVIOT.

MALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
14.6	1,056	1/1¼	Woolen	1/1¼	Woolen	3	8	98	16	163¾	31 30	16 02	15 28	50.9	49.1	5.20	10.21	3.7
15.0	1,054	1/1¼	do	1/1¼	do	3	8	98	16	311¼	45 30	33 12	12 18	73.0	27.0	6.84	9.38	3.7
16.2	1,188	1/2½	do	1/1½	do	3	8	98	17	251½	38 30	26 09	12 21	67.9	32.1	6.53	9.61	3.7
18.5	1,224	2/3	do	2/3	do	3	8	98	17	205¼	32 30	21 23	11 07	65.8	34.2	6.31	9.61	3.7
19.0	1,420	2/3	do	2/3	do	3	8	90	18	187¼	34 30	22 30	12 00	65.2	34.8	5.43	8.33	3.7
19.0	1,224	1/1½	do	1/1½	do	3	8	98	22	67½	15 00	9 05	5 55	60.6	39.4	4.50	7.42	3.8
20.0	1,278	1/1½	do	1/1½	do	3	8	90	22	236¾	46 00	34 43	11 17	75.5	24.5	5.15	6.82	3.8
19.0	1,452	1/1½	do	1/1½	do	3	8	90	22	92	20 00	13 29	6 31	67.5	32.5	4.60	6.82	3.8
20.0	1,224	1/1½	do	1/1½	do	3	8	98	22	28	5 00	3 46	1 14	75.4	24.6	5.60	7.42	3.8
22.6	1,404	1/1½	do	1/1½	do	3	8	90	24	83	27 45	13 17	14 28	47.9	52.1	2.99	6.25	4.1
21.2	1,404	1/1½	do	1/1½	do	3	8	98	24	47¾	9 00	7 01	1 59	78.0	22.0	5.31	6.81	4.1
15.4	1,742	1/1½	do	1/3	do	3	8	90	26	166¼	34 30	28 49	5 41	83.5	16.5	4.82	5.77	4.4
15.0	1,742	1/1½	do	1/3	do	3	8	90	26	201¼	39 30	34 53	4 37	88.3	11.7	5.09	5.77	4.4
15.4	1,656	1/2¼	do	1/2¼	do	3	8	98	26	76¾	21 00	12 13	8 47	58.2	41.8	3.65	6.28	4.4
15.6	1,742	1/2¼	do	1/2¼	do	3	8	98	28	164½	36 00	28 12	7 48	78.3	21.7	4.57	5.83	4.7
16.2	1,742	1/2¼	do	1/2¼	do	3	8	98	28	109½	28 00	18 46	9 14	67.0	33.0	3.91	5.83	4.7
14.4	1,742	1/2¼	do	1/3	do	3	8	98	28	206½	44 30	35 24	9 06	79.6	20.4	4.64	5.83	4.7
18.4	1,470	1/1½	do	1/2¾	do	3	8	90	30	146¾	35 00	29 21	5 39	83.9	16.1	4.19	5.00	5.0
15.2	1,656	1/2½	do	1/3	do	3	8	90	32	175¼	45 00	37 23	7 37	83.1	16.9	3.89	4.69	5.3
15.4	1,188	1/2½	do	1/1½	do	3	8	98	17	205¼	32 30	21 23	11 07	65.8	34.2	6.31	9.61	3.7

FEMALE WEAVERS.

19.0	1,420	2/3	Woolen	2/3	Woolen	4	8	98	18	90½	13 00	10 00	3 00	76.9	23.1	6.98	9.07	3.7
18.8	1,420	2/3	do	2/3	do	3	8	98	22	103½	17 30	13 58	3 32	79.8	20.2	5.93	7.42	3.7
20.0	1,224	1/1½	do	1/1½	do	3	8	98	22	54½	10 30	7 20	3 10	69.9	30.1	5.19	7.42	3.8
20.0	1,449	1/1½	do	1/1½	do	3	8	90	22	43½	10 00	6 20	3 46	63.4	36.6	4.33	6.82	3.8
21.2	1,404	1/1½	do	1½	do	3	8	98	24	118½	30 00	17 25	12 35	58.0	42.0	3.95	6.81	4.1
15.4	1,656	1½	do	1/1½	do	3	8	98	26	71½	23 00	11 25	11 35	49.7	50.3	3.12	6.28	4.4
28.0	2,880	1/1½ 1½	do	1/1½ 1½	do	4	10	98	32	128½	36 30	25 08	11 22	68.8	31.2	3.51	5.10	5.3
28.0	2,880	1/1½ 1½	do	1/1½ 1½	do	4	10	98	32	46½	13 00	9 10	3 50	70.5	29.5	3.60	5.10	5.3
14.2	2,070	1½	do	2/36 1½	Worsted Woolen	4	8	98	40	54	18 30	13 13	5 17	71.5	28.5	2.92	4.01	6.8

PLAIN CHEVIOT.

MALE WEAVERS.

19.32	1,500	1-1½	Woolen	1-1½	Woolen	5	8	90	24	119½	22 00	19 07	2 53	86.9	13.1	5.43	6.25	5.17
19.32	1,500	1-1½	do	1-1½	do	5	8	90	24	133½	25 00	21 22	3 38	85.44	14.56	5.34	6.25	5.17
20.56	2,148	1-2½	do	1-2½	do	4	8	90	25	15½	4 15	2 35	1 40	60.71	39.29	3.65	6.00	5.39
20.93	1,404	1-1½	do	1-2½	do	5	8	100	28	205½	40 30	34 31	5 59	85.2	14.8	5.07	5.95	5.39
21.15	1,404	1-1½	do	1-2½	do	5	16	100	28	181½	43 45	30 29	13 16	69.69	30.31	4.15	5.95	5.39
20.93	1,404	1-1½	do	1-2½	do	5	8	100	28	194	47 00	32 35	14 25	69.34	30.66	4.13	5.95	5.39
21.15	1,404	1-1½	do	1-2½	do	5	16	100	28	36	7 45	6 03	1 42	78.06	21.94	4.65	5.95	5.39
21.15	1,585	1-1½	do	1-2½	do	5	9	100	28	76	16 15	12 46	3 29	78.58	21.42	4.68	5.95	5.39
21.15	1,404	1-1½	do	1-2½	do	5	16	100	29	127	30 45	22 06	8 39	71.87	28.13	4.13	5.75	5.61
20.91	2,076	1-2½	do	1-2½	do	5	8	100	33	15	4 45	2 58	1 47	62.5	37.5	3.16	5.05	6.27
20.91	2,076	1-2½	do	1-2½	do	5	8	100	33	116½	36 30	23 04	13 26	63.2	36.8	3.19	5.05	6.27
21.24	2,108	1-2½	do	1-2½	do	5	8	100	33	105½	26 30	20 53	5 37	78.8	21.2	3.98	5.05	6.27
20.92	2,108	1-2½	do	1-2½	do	5	8	100	33	128	32 00	25 20	6 40	79.2	20.8	4.00	5.05	6.27
20.91	2,076	1-2½	do	1-2½	do	5	8	100	33	180	40 30	35 38	4 52	88.0	12.0	4.44	5.05	6.27
20.91	2,076	1-2½	do	1-2½	do	5	8	100	33	113½	37 30	22 28	15 02	59.92	40.08	3.03	5.05	6.27
20.91	2,076	1-2½	do	1-2½	do	4	8	100	34	194½	56 45	39 35	17 10	69.7	30.3	3.43	4.90	6.38
20.91	2,076	1-2½	do	1-2½	do	5	8	100	34	51	14 30	10 24	4 06	71.7	28.3	3.52	4.90	6.38
20.91	2,260	1-2½	do	1-2½	do	5	10	100	34	149	43 45	30 24	13 21	69.49	30.51	3.41	4.90	6.38
20.91	2,260	1-2½	do	1-2½	do	5	10	100	34	177	58 00	36 07	21 53	62.26	37.74	3.05	4.90	6.38
20.91	2,260	1-2½	do	1-2½	do	5	19	100	34	223½	58 00	45 35	12 25	78.60	21.40	3.85	4.90	6.38
20.74	2,116	1-2½	do	1-2½	do	5	8	100	34	153½	43 00	31 19	11 41	72.81	27.19	3.57	4.90	6.38
20.91	2,260	1-2½	do	1-2½	do	5	10	100	34	163½	39 30	33 21	6 09	84.43	15.57	4.14	4.90	6.38
18.11	2,788	1-3½	do	1-3½	do	5	8	100	40	61	26 10	14 38	11 32	55.9	44.1	2.33	4.17	7.37
18.11	2,788	1-3½	do	1-3½	do	5	8	100	40	68½	22 05	16 26	5 39	74.45	25.55	3.10	4.17	7.37
18.11	2,788	1-3½	do	1-3½	do	5	8	100	40	184½	54 45	44 17	10 28	80.88	19.12	3.37	4.17	7.37
18.51	2,820	1-5 1-3 1-3½	do	1-3 1-3½	do	4	9	100	43	95½	35 00	24 38	10 22	70.4	29.6	2.73	3.88	7.81

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

PLAIN CHEVIOT—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
18.36	1,404	1-1¼	Woolen	1-2¼	Woolen	5	8	100	43	142½	58 00	36 46	21 14	63.4	36.6	2.46	3.88	7.81
22.17	1,356	1-1¼	do	1-1¼	do	5	8	90	20	151	29 15	20 08	9 07	68.8	31.2	5.16	7.50	4.51
22.17	1,356	1-1¼	do	1-1¼	do	5	8	90	20	57½	8 35	7 40	55	89.36	10.64	6.70	7.50	4.51
21.94	1,356	1-1¼	do	1-1¼	do	5	8	92	20	69½	11 30	9 16	2 14	80.61	19.39	6.04	7.50	4.51
23.0	1,600	1-1½	do	1-1½	do	4	8	90	29	229	58 00	50 10	7 50	74.0	26.0	3.60	4.17	5.17
22.2	1,440	1-1½	do	1-1½	do	5	8	95	29	198½	58 00	46 05	11 55	79.5	20.5	4.38	5.46	5.17
22.4	1,440	1-1½	do	1-1½	do	4	8	95	29	136½	47 20	26 41	20 39	56.4	43.6	3.03	5.46	5.17
22.2	1,440	1-1½	do	1-1½	do	4	8	95	29	185	58 00	46 05	11 55	79.5	20.5	2.59	4.04	5.17
21.0	1,440	1-1½	do	1-1½	do	4	8	86	29	85	58 00	23 11	34 49	40.0	60.0	2.38	5.95	5.17
22.6	1,440	1-1½	do	1-1½	do	4	8	95	29	187½	58 00	34 20	23 40	59.2	40.8	3.23	5.46	5.17
14.5	1,680	2-5	do	2-5	do	5	8	94	28	252	50 00	45 02	4 58	90.1	9.9	5.04	5.60	4.9
14.5	1,680	2-5	do	2-5	do	5	8	96	28	140	35 00	24 30	10 30	70.0	30.0	4.00	5.71	4.9
20.5	1,680	1-1¾	do	1-1¾	do	4	8	98	28	29½	13 00	5 04	7 56	38.9	61.1	2.27	5.83	4.9
20.5	1,680	1-1¾	do	1-1¾	do	4	8	98	28	100	40 00	17 08	22 52	42.9	57.1	2.50	5.83	4.9
13.6	1,440	1-2¼	do	1-2¼	do	5	8	94	24	248	50 00	37 59	12 01	76.0	24.0	4.96	6.53	4.8
14.0	1,440	1-2¼	do	1-2¼	do	4	8	98	26	113	32 00	17 59	14 01	56.2	43.8	3.53	6.28	4.5
12.5	2,160	1-4¼	do	1-4¼	do	5	8	92	36	158½	50 00	37 13	12 47	74.4	25.6	3.17	4.26	6.3
12.0	2,160	1-4¼	do	1-4¼	do	5	8	94	36	155	45 00	35 37	9 23	79.2	20.8	3.44	4.35	6.3
17.0	2,400	2-19	Worsted	2-19	Worsted	4	12	96	36	11	6 30	2 29	4 01	38.2	61.8	1.69	4.44	7.3
12.2	2,688	2-28	do	2-28	do	4	8	96	42	106	42 10	27 50	14 20	66.0	34.0	2.51	3.81	8.3
12.2	2,688	2-28	do	2-28	do	3	12	96	42	129	38 10	33 52	4 18	88.7	11.3	3.38	3.81	8.8
12.2	2,688	2-28	do	2-28	do	5	8	112	42	25	7 20	5 38	1 42	76.8	23.2	3.41	4.44	8.1
12.2	2,688	2-28	do	2-28	do	3	10	106	42	116	31 50	27 35	4 15	83.5	16.5	3.64	4.21	7.6
12.2	2,688	2-28	do	2-28	do	4	8	106	42	132	35 40	31 23	4 17	88.0	12.0	3.70	4.21	7.6
12.2	2,688	2-28	do	2-28	do	5	8	90	42	39	14 30	10 55	3 35	75.3	24.7	2.69	3.57	8.8
12.2	2,688	2-28	do	2-28	do	4	8	96	44	79	32 20	21 43	10 37	67.2	32.8	2.44	3.64	8.6

12.2	2,688	2-28	.....do..........	2-28	.....do.........	3	8	96	44	57½	21 20	15 49	5 31	74.1	25.9	2.70	3.64	7.9
16.8	3,060	2-22	.....do..........	2-22	.....do.........	3	8	85	44	40	15 10	12 25	2 45	81.9	18.1	2.64	3.22	9.1
12.2	2,700	2-28	.....do..........	2-28	.....do.........	4	10	106	44	71	21 50	17 41	4 09	81.0	19.0	3.25	4.02	8.4
12.2	2,688	2-28	.....do..........	2-28	.....do.........	3	8	112	44	147	42 10	34 39	7 31	82.2	17.8	3.40	4.24	7.9
12.2	2,688	2-28	.....do..........	2-28	.....do.........	3	12	106	44	132	42 10	32 53	9 17	78.0	22.0	3.13	4.02	8.4
12.2	2,688	2-28	.....do..........	2-28	.....do.........	3	8	106	44	135	42 10	33 37	8 33	79.7	20.3	3.20	4.02	8.4
12.2	2,688	2-28	.....do..........	2-28	.....do.........	4	10	106	44	138	42 10	34 22	7 48	81.5	18.5	3.27	4.02	7.9
12.2	2,688	2-28	.....do..........	2-28	.....do.........	3	12	112	44	108	30 50	25 28	5 22	82.6	17.4	3.50	4.24	8.4
12.2	2,688	2-28	.....do..........	2-28	.....do.........	4	12	112	44	122	40 10	28 46	11 24	71.6	28.4	3.04	4.24	7.9
12.2	2,688	2-28	.....do..........	2-28	.....do.........	4	8	106	44	141	38 00	35 07	2 53	92.4	7.6	3.71	4.02	7.9
12.2	2,688	2-28	.....do..........	2-28	.....do.........	5	8	106	44	80	25 20	19 55	5 25	78.6	21.4	3.16	4.02	8.4
12.2	2,688	2-28	.....do..........	2-28	.....do.........	4	12	106	44	133	37 20	33 07	4 13	88.7	11.3	3.56	4.02	7.9
12.2	2,688	2-28	.....do..........	2-28	.....do.........	3	8	106	44	62	20 00	15 26	4 34	77.2	22.8	3.10	4.02	8.4
12.0	3,456	2-35	.....do..........	2-35	.....do.........	3	8	106	48	71	23 20	19 17	4 03	82.7	17.3	3.04	3.66	8.5
14.2	2,880	2-28	.....do..........	2-28	.....do.........	3	6	106	50	77	23 50	21 47	2 03	91.4	8.6	3.23	3.58	10.4
17.4	4,032	2-32	.....do..........	5¼	Woolen.......	3	8	90	60	26	12 00	10 24	1 36	86.7	13.3	2.17	2.50	13.8

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

PLAIN CHEVIOT—Continued.

FEMALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
15.4	1,296	1-2	Woolen	1-2	Woolen	4	8	108	24	48¾	11 05	6 30	4 35	58.6	41.4	4.40	7.50	5.25
20.9	1,200	1-1⅞	do	1-1⅞	do	4	10	96	32	73½	30 15	14 42	15 33	48.6	51.4	2.43	5.00	5.0
20.0	1,920	1-2¼	do	1-2¼	do	4	12	95	32	65	23 05	13 08	9 57	56.9	43.1	2.82	4.95	6.25
13.2	2,160	1-3¼	do	1-3¾	do	4	8	98	34	62	15 10	12 55	2 15	85.1	14.9	4.09	4.80	6.5
17.5	2,304	1-5¼ 2-20	do	1-5¼	do	5	8	97	34	43½	15 35	9 09	6 26	58.7	41.3	2.79	4.75	6.75
14.4	2,160	1-3½	do	1-3¾	do	4	7	97	34	120	33 40	25 14	8 26	74.9	25.1	3.56	4.75	6.5
14.2	2,160	1-3¾	do	1-3¾	do	4	8	97	36	79½	30 15	17 42	12 33	58.5	41.5	2.63	4.49	6.75
13.9	1,296	1-2	do	1-2	do	4	16	97	36	54	15 25	12 01	3 24	77.9	22.1	3.50	4.49	4.75
13.6	2,160	1-3¾	do	1-3¾	do	4	8	97	36	105¾	40 20	23 54	16 26	58.3	41.7	2.62	4.49	6.75
14.0	2,160	1-3¾	do	1-3¾	do	4	8	97	36	54½	13 35	12 08	1 27	89.3	10.7	4.01	4.49	6.75
12.1	2,304	1-4½	do	1-4½	do	4	12	108	40	32½	16 05	7 13	8 52	44.9	55.1	2.02	4.50	7.25
21.5	1,920	1-2	do	1-2¾	do	5	12	94	34	49½	16 30	10 44	5 46	65.1	34.9	3.00	4.61	5.9
21.5	1,920	1-2	do	1-2¾	do	5	8	94	34	16	5 00	3 20	1 40	66.6	33.4	3.20	4.80	5.9
21.5	1,944	1-2	do	1-2¾	do	5	12	98	34	137	39 00	28 31	10 29	73.1	26.9	3.51	4.80	5.9
21.5	1,920	1-2	do	1-2	do	5	12	94	34	183	54 10	39 43	14 27	73.3	26.7	3.38	4.61	5.9
21.0	2,180	1-2½	do	1-2½	do	4	8	94	36	53½	20 00	12 17	7 43	61.5	38.5	2.68	4.35	6.3
13.3	1,680	2-4½	do	2-4½	do	4	8	98	36	142½	50 00	31 25	18 35	62.8	37.2	2.85	4.54	6.3
19.29	1,540	1-1⅞	do	1-1⅞	do	5	8	90	24	114½	25 30	18 19	7 11	71.8	28.2	4.49	6.25	5.17
21.15	1,404	1-1½	do	1-2¾	do	5	16	100	28	116	22 15	19 29	2 46	87.6	12.4	5.21	5.95	5.39
20.93	1,404	1-1½	do	1-2¾	do	5	8	100	28	60	14 00	10 05	3 55	72.0	28.0	4.29	5.95	5.39
21.15	1,404	1-1½	do	1-2¾	do	5	16	100	28	173	50 45	29 04	21 41	57.3	42.7	3.41	5.95	5.39
20.91	2,076	1-2¾	do	1-2¾	do	5	8	100	33	55	16 00	10 53	5 07	68.06	31.94	3.44	5.05	6.27
20.91	2,076	1-2¾	do	1-2¾	do	5	8	100	33	208	56 10	41 11	14 59	73.32	26.68	3.70	5.05	6.27
20.91	2,076	1-2¾	do	1-2¾	do	5	8	100	33	61	19 30	12 05	7 25	61.95	38.05	3.13	5.05	6.27

20.91	2,076	1-2½	.....do..........	1-2½	.....do.........	5	8	100	33	220½	54 45	43 40	11 05	79.7	20.3	4.08	5.05	6.27
20.91	2,076	1-2½	.....do..........	1-2½	.....do.........	4	8	100	34	78	32 00	15 55	16 05	49.72	50.28	2.44	4.90	6.38
20.57	2,180	1-2½	.....do..........	1-2½	.....do.........	5	8	100	34	175	54 20	35 42	18 38	65.7	34.3	3.22	4.90	6.38
20.91	2,076	1-2½	.....do..........	1-2½	.....do.........	4	8	100	34	226½	58 00	46 13	11 47	79.7	20.3	3.91	4.90	6.38
20.74	2,116	1-2½	.....do..........	1-2½	.....do.........	5	8	100	34	207	46 15	42 14	4 01	91.3	8.7	4.48	4.90	6.38
20.91	2,076	1-2½	.....do..........	1-2½	.....do.........	5	8	100	34	98	25 30	18 58	6 32	74.4	25.6	3.65	4.90	6.38
18.50	2,600	1-2½	.....do..........	1-3½ 1-2½	.....do	4	16	100	35	107½	35 20	22 35	12 45	63.91	36.00	3.04	4.76	6.6
18.07	2,748	1-3½	.....do..........	1-3½	.....do.........	5	16	100	40	48	29 45	11 31	18 14	38.72	61.28	1.61	4.17	7.37
20.92	2,108	1-2½	.....do..........	1-2½	.....do.........	5	8	100	42	193½	56 15	48 46	7 29	86.68	13.32	3.44	3.97	6.27
20.28	1,212	1-1½	.....do..........	1-1½	.....do.........	5	4	90	19	25	4 30	8 10	1 20	70.4	29.6	5.56	7.89	4.4
22.17	1,356	1-1½	.....do..........	1-1½	.....do.........	5	8	90	20	92	13 45	12 16	1 29	92.5	7.5	6.09	7.50	4.51
22.17	1,356	1-1½	.....do..........	1-1½	.....do.........	5	8	90	20	162½	24 10	21 40	2 30	89.7	10.3	6.72	7.50	4.51
22.2	1,440	1/1½	.....do..........	1/1½	.....do.........	4	8	92	28	273½	58 00	50 17	7 43	86.7	13.3	4.72	5.48	4.96
23.5	1,440	1/1½	.....do..........	1/1½	.....do.........	4	8	92	29	183	52 20	34 37	17 43	66.1	33.9	3.50	5.29	5.17
22.0	1,440	1/1½	.....do..........	1/1½	.....do.........	4	8	92	29	238½	58 00	44 17	13 43	76.3	23.7	4.11	5.48	4.96
22.2	1,440	1/1½	.....do..........	1/1½	.....do.........	4	8	90	29	182	58 00	35 11	22 49	60.7	39.3	3.14	5.17	5.17
22.2	1,440	1/1½	.....do..........	1/1½	.....do.........	5	8	95	29	216	58 00	39 34	18 26	68.2	31.8	3.72	5.46	5.17
21.8	1,440	1/1½	.....do..........	1/1½	.....do.........	4	8	90	29	139	52 20	26 52	25 28	51.4	48.6	2.66	5.17	5.17
22.2	1,440	1/1½	.....do..........	1/1½	.....do.........	4	8	95	29	224	58 00	41 02	16 58	70.7	29.3	3.86	5.46	5.17
22.6	1,440	1/1½	.....do..........	1/1½	.....do.........	4	8	95	29	240	58 00	41 29	16 31	71.5	28.5	4.14	5.46	5.17
22.0	1,440	1/1½	.....do..........	1/1½	.....do.........	4	8	86	29	232	58 00	46 56	11 04	80.9	19.1	4.00	4.94	5.17
23.5	1,440	1/1½	.....do..........	1/1½	.....do	4	8	95	29	205	58 00	36 40	21 20	63.2	36.8	3.53	5.86	5.17

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

UNIFORM CLOTH.

MALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
18.5	3,264	1-4	Woolen	1-4½	Woolen	3	10	90	62	141	68 00	58 17	9 43	85.7	14.3	1.89	2.03	9.1
18.0	3,364	1-4½	do	1-4½	do	3	10	90	62	129	68 00	53 19	14 41	78.4	21.6	1.90	2.41	9.1
18.5	3,264	1-4	do	1-4½	do	3	10	90	62	144	70 30	59 31	10 59	84.4	15.6	2.04	2.42	9.1
27.0	4,608	1-3½	do	1-3½	do	3	14	88	64	142	70 30	61 59	8 31	87.9	12.1	2.01	2.29	9.4
27.0	4,608	1-3½	do	1-3½	do	3	14	90	64	120	70 30	51 12	19 18	72.6	27.4	1.70	2.34	9.4
27.0	4,608	1-3½	do	1-3½	do	3	14	87	64	53	40 00	23 23	16 37	58.5	41.5	1.33	2.27	9.4
19.0	3,720	1-4½	do	1-5½	do	3	10	84	68	125	65 00	60 43	4 17	93.4	6.6	1.92	2.06	10.0
32.0	4,608	1-3½	do	1-3½	do	3	8	86	70	95	65 30	46 24	19 06	70.8	29.2	1.45	2.05	10.2
32.0	4,608	1-3½	do	1-3½	do	3	8	84	70	131	70 30	65 30	5 00	92.9	7.1	1.86	2.00	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	90	72	121	64 00	58 05	5 55	90.8	9.2	1.89	2.08	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	86	72	109	70 30	54 45	15 45	77.7	22.3	1.55	2.00	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	86	72	100	64 00	50 14	13 46	78.5	21.5	1.56	2.00	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	86	72	79	68 00	39 41	28 19	58.4	41.6	1.16	2.00	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	86	72	128	70 30	61 26	9 04	87.1	12.9	1.82	2.08	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	86	72	89	70 30	44 43	25 47	63.4	36.6	1.26	2.00	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	90	72	132	70 30	63 22	7 08	89.9	10.1	1.87	2.08	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	90	72	112	68 00	53 46	14 14	79.1	20.9	1.65	2.08	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	90	72	110	70 30	52 48	17 42	74.9	25.1	1.56	2.08	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	90	72	42	67 00	20 10	46 50	30.1	69.9	.63	2.08	10.6
32.0	4,608	1-3½	do	1-3½	do	3	8	84	72	81	70 30	41 40	28 50	59.1	40.9	1.15	1.94	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	84	72	70	66 00	36 00	30 00	54.5	45.5	1.06	1.94	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	84	72	73	68 00	37 32	30 28	55.2	44.8	1.07	1.94	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	84	72	116	68 00	59 40	8 20	87.7	12.3	1.71	1.94	10.6
29.0	4,890	1-4½	do	1-5½	do	3	8	84	72	72	65 30	37 02	28 28	56.5	43.5	1.10	1.94	10.6
29.0	4,608	1-3½	do	1-3½	do	3	8	86	72	11	7 00	4 45	2 15	67.9	32.1	1.57	2.13	10.6

29.0	4,608	1-3½	.....do..........	1-3½	.....do.........	3	8	86	72	106	65 00	53 15	11 45	81.9	18.1	1.63	2.00	10.6
29.0	4,608	1-3½	.....do..........	1-3½	.....do.........	3	8	87	72	50	28 30	24 50	3 40	87.1	12.9	1.75	2.01	10.6
17.4	2,808	1/3½	.....do..........	1/3½	.....do.........	3	9	90	42	102	40 50	28 34	12 16	69.9	30.1	2.50	3.57	4.63
17.4	2,808	1/3½	.....do..........	1/3½	.....do.........	3	9	96	42	104½	40 50	27 26	13 24	67.2	32.8	2.56	3.81	4.31
25.6	3,024	2½	.....do..........	3	.....do.........	3	8	100	40	153	49 15	36 43	12 32	74.6	25.4	3.11	4.17	6.8
15.9	3,400	4½	.....do..........	5½	.....do.........	3	8	100	50	57	27 00	17 06	9 54	63.3	36.7	2.11	3.33	8.1
21.8	3,600	3½	.....do..........	4	.....do.........	2	8	100	52	173¾	62 00	54 13	7 47	87.4	12.6	2.80	3.21	8.4
20.9	3,600	3½	.....do..........	4½	.....do.........	2	8	105	54	206	72 30	63 34	8 56	87.7	12.3	2.84	3.24	8.7
21.2	3,600	3½	.....do..........	4½	.....do.........	2	8	105	54	103½	62 45	31 56	30 49	50.9	49.1	1.65	3.24	8.7
21.4	3,600	3½	.....do..........	4½	.....do.........	2	8	105	54	155¾	70 15	47 55	22 20	68.2	31.8	2.21	3.24	8.7
21.2	3,600	3½	.....do..........	4½	.....do.........	2	8	105	54	101¾	49 15	31 24	17 51	63.8	36.2	2.07	3.24	8.7
18.0	3,240	4½	.....do..........	6	.....do.........	3	6	105	58	59	29 30	19 33	9 57	66.3	33.7	2.00	3.02	9.3
17.7	3,240	4½	.....do..........	6	.....do.........	3	6	105	58	175¾	82 00	58 15	23 45	71.0	29.0	2.14	3.02	9.3
14.5	2,880	4½	.....do..........	5	.....do.........	3	8	98	44	121½	38 00	32 27	5 33	85.4	14.6	3.16	3.71	6.9
14.5	2,880	4½	.....do..........	5	.....do.........	3	8	98	44	29	10 30	7 49	2 41	74.4	25.6	2.77	4.08	6.9
14.5	2,880	4½	.....do..........	5	.....do.........	3	8	98	44	114	37 30	30 43	6 47	81.9	18.1	3.04	3.71	6.9
14.5	2,880	4½	.....do..........	5	.....do.........	3	8	98	44	98½	32 30	26 32	5 58	60.0	40.0	3.03	3.71	6.9
14.5	2,880	4½	.....do..........	5	.....do.........	3	8	98	44	45	14 00	12 07	1 53	86.6	13.4	3.22	3.71	6.9
16.5	2,880	4½	.....do..........	5	.....do.........	3	8	98	44	121	38 00	33 00	5 00	86.8	13.2	3.18	3.71	6.9
14.5	2,880	4½	.....do..........	5	.....do.........	3	8	98	44	109	38 00	29 22	8 38	77.4	22.6	2.87	3.71	6.9
14.5	2,880	4½	.....do..........	5	.....do.........	3	8	95	44	107½	37 30	29 52	7 38	79.7	20.3	2.82	3.60	6.9
22.5	3,168	3½	.....do..........	3½	.....do.........	3	8	98	46	112	38 00	31 32	6 28	83.0	17.0	3.91	3.55	7.4
22.5	3,168	3½	.....do..........	3½	.....do.........	3	8	98	46	92½	37 30	26 03	11 27	63.3	36.7	2.47	3.55	7.4
22.5	3,168	3½	.....do..........	3½	.....do.........	3	8	98	46	107½	37 15	30 16	6 59	81.3	18.7	1.87	2.80	7.4
22.5	3,168	3½	.....do..........	3½	.....do.........	3	8	98	46	111	38 00	31 16	6 44	82.4	17.6	1.76	2.92	7.4
18.25	3,360	1-4½	.....do..........	1-4½	.....do.........	3	10	86	58	87	58 00	35 12	22 48	60.7	39.3	1.50	2.47	9.1
17.75	3,260	1-4½	.....do..........	1-4½	.....do.........	3	10	90	58	67	33 00	25 55	7 05	78.5	21.5	2.03	2.59	8.6
20.5	3,454	1-4½	.....do..........	1-4½	.....do.........	3	10	90	58	34	20 00	13 09	6 51	65.8	34.2	1.70	2.59	8.8
26.0	4,608	1-3½	.....do..........	1-4½	.....do.........	3	8	90	60	153	70 30	61 12	9 18	86.8	13.2	2.17	2.50	8.9
14.2	2,880	1-4½	.....do..........	1-4½	.....do.........	2	6	110	40	112	47 30	24 26	23 04	51.7	48.3	2.37	4.58	3.5
15.4	3,024	1/4½	.....do..........	1-4½	.....do.........	2	4	90	40	88	31 30	23 27	8 03	74.4	25.6	2.79	3.75	3.3
15.7	3,120	1-4½	.....do..........	1-4½	.....do.........	2	6	90	42	66½	47 30	18 37	28 53	39.2	60.8	1.40	3.57	3.5
15.6	3,120	1-4½	.....do..........	1-4	.....do.........	2	6	90	43	92	47 30	26 22	21 08	55.5	44.5	1.94	3.49	3.5
15.1	3,120	1-4½	.....do..........	1-4½	.....do.........	2	6	110	43	88½	32 00	20 45	11 15	64.8	35.2	2.77	4.26	3.5

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

UNIFORM CLOTH—Continued.

FEMALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
											Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.			Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
25.2	3,024	2¼	Woolen	3	Woolen	3	8	100	40	204½	67 30	49 01	18 29	72.6	27.4	3.03	4.17	6.6
19.2	3,102	3¼	do	4¼	do	3	8	100	48	60	29 30	17 17	12 13	58.6	41.4	2.56	3.33	8.1
18.8	3,102	3¼	do	4¼	do	3	6	100	48	232	88 15	66 49	21 26	75.7	24.3	2.63	3.47	7.8
22.2	3,102	3¼	do	3¼	do	3	8	100	50	254	87 30	76 12	11 18	87.1	12.9	2.90	3.33	8.1
22.3	3,102	3¼	do	3¼	do	3	8	100	50	204½	73 30	61 17	12 13	83.4	16.6	2.78	3.33	8.1
22.2	3,102	3¼	do	3¼	do	3	8	100	50	203	72 45	60 54	11 51	83.7	16.3	2.79	3.33	8.1
22.3	3,102	3¼	do	3¼	do	3	8	100	50	204½	77 45	61 17	16 28	78.8	21.2	2.63	3.33	8.1
22.2	3,102	3¼	do	3¼	do	3	8	100	50	50	19 30	15 00	4 30	76.9	23.1	2.56	3.33	8.1
31.1	3,900	3¼	do	3	do	3	8	100	52	136½	71 00	42 31	28 29	59.9	40.1	1.92	3.21	8.4
22.2	3,600	3¼	do	4	do	2	8	100	52	228¾	84 15	71 22	12 53	84.7	15.3	2.72	3.21	8.4
20.8	3,600	3¼	do	4¼	do	2	8	105	54	153¾	69 45	47 26	22 19	70.0	30.0	2.27	3.24	8.7
21.0	3,600	3¼	do	4¼	do	2	8	100	54	52	24 45	16 51	7 54	68.1	31.9	2.10	3.09	8.7
14.5	2,880	4¼	do	5	do	3	8	98	40	114½	34 00	30 50	3 10	90.6	9.4	3.35	3.71	6.9
14.5	2,880	4¼	do	5	do	3	8	95	44	41	14 30	11 23	3 07	78.9	21.1	2.83	3.60	6.9
24.5	3,168	3	do	3¼	do	3	10	100	46	93	34 00	25 40	8 20	74.1	25.9	2.74	3.62	7.3
22.5	3,168	3¼	do	3¼	do	3	8	98	46	90½	34 00	25 29	8 31	75.0	25.0	2.66	3.55	7.4
22.5	3,168	3¼	do	3¼	do	3	8	98	46	108	34 30	30 25	4 05	88.4	11.6	3.18	3.55	7.4
20.0	3,600	1-4¼	do	1-4¼	do	3	8	92	56	64	29 00	23 22	5 38	80.6	19.4	2.21	2.74	7.7
18.0	3,600	1-4¼	do	1-4¼	do	3	8	92	56	110½	51 45	40 21	11 24	77.5	22.5	2.14	2.74	8.9
20.0	3,600	1-4¼	do	1-4¼	do	3	8	92	56	53	25 30	19 21	6 09	75.4	24.6	2.08	2.74	8.9
21.0	3,200	6¼	do	1-3¼	do	3	8	92	56	108	51 45	37 37	14 08	72.7	27.3	1.99	2.74	8.9
20.0	3,600	1-4¼	do	1-4¼	do	3	8	92	56	53	25 30	19 22	6 08	75.0	25.0	2.08	2.74	8.9
20.5	3,454	1-4¼	do	1-4¼	do	3	10	90	58	97	63 30	37 31	25 59	59.1	40.9	1.53	2.59	8.8
17.75	3,260	1-4¼	do	1-4¼	do	3	10	90	58	128	61 00	49 29	11 31	81.1	18.9	2.10	2.59	8.8
17.75	3,260	1-4¼	do	1-4¼	do	3	10	90	58	104	68 00	40 13	27 47	59.0	41.0	1.52	2.59	8.6

17.75	3,260	1-4¼	.....do..........	1-4⅝	.....do........	3	10	88	58	71	62 30	28 05	34 25	44.9	53.1	1.14	2.53	8.6
17.75	3,264	1-4¼	.....do..........	1-4⅜	.....do........	3	10	88	58	147	70 30	58 08	12 22	82.5	17.5	2.09	2.53	8.6
18.5	3,264	1-4	.....do..........	1-4½	.....do........	3	10	90	58	60	37 00	23 12	13 48	62.7	37.3	1.62	2.59	9.1
17.75	3,264	1-4¼	.....do..........	1-4⅜	.....do........	3	8	90	58	51	21 00	19 43	1 17	93.9	6.1	2.43	2.59	8.6
18.5	3,264	1-4	.....do..........	1-4½	.....do........	3	10	88	62	132	68 00	55 48	12 12	82.1	17.9	1.94	2.37	9.1
18.5	3,264	1-4	.....do..........	1-4½	.....do........	3	10	90	62	150	65 30	62 00	3 30	94.7	5.3	2.29	2.42	9.1
18.5	3,264	1-4	.....do..........	1-4½	.....do........	3	10	90	62	28	27 00	25 38	1 22	94.9	5.1	1.04	2.42	9.1
24.5	4,750	1-4¼	.....do..........	1-4½	.....do........	3	14	88	64	107	68 00	46 41	21 19	68.7	31.3	1.57	2.29	9.4
27.0	4,608	1-3⅞	.....do..........	1-3⅞	.....do........	3	14	90	64	122	58 30	52 03	6 27	89.0	11.0	2.09	2.35	9.4
29.0	3.840	1-3¾	.....do..........	1-3½	.....do........	3	8	92	70	48	69 30	21 55	47 35	31.5	68.5	.69	2.19	10.2
29.0	4,608	1-3⅞	.....do..........	1-3⅝	.....do........	3	8	90	72	90	50 30	43 12	7 18	85.5	14.5	1.78	2.08	10.6
29.0	4,608	1-3⅞	.....do..........	1-3⅝	.....do........	3	8	86	72	94	64 00	47 13	16 47	73.8	26.2	1.47	1.99	10.6
29.0	4,608	1-3⅞	.....do..........	1-3⅝	.....do........	3	8	88	72	107	68 30	52 32	15 58	76.7	23.3	1.56	2.04	10.6
29.0	4,608	1-3⅞	.....do..........	1-3⅝	.....do........	3	8	88	72	101	70 00	49 35	20 25	70.8	29.2	1.44	2.04	10.6
29.0	4,608	1-3⅞	.....do..........	1-3⅝	.....do........	3	8	86	72	95	55 30	47 43	7 47	89.0	11.0	1.71	1.99	10.6
29.0	4,608	1-3⅞	.....do..........	1-3⅝	.....do........	3	8	90	72	114	70 30	54 43	15 47	77.6	22.4	1.62	2.08	10.6
29.0	4.608	1-3⅞	.....do..........	1-3⅞	.....do........	3	8	90	72	77	44 00	36 58	7 02	84.0	16.0	1.75	2.08	10.6
29.25	4.608	1-3⅞	.....do..........	1-3⅝	.....do........	3	8	90	74	103	67 30	50 49	16 41	86.1	13.9	1.53	2.03	10.6

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

LADIES' DRESS GOODS.

MALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		Piece price per yard.
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
22.0	2,592	1¾	Woolen	1/3	Woolen	3	8	90	44	62½	40 50	18 20	22 30	44.9	55.1	1.53	3.41	8.27
22.0	2,592	1¾	do	1/3	do	3	8	96	44	87½	37 40	24 04	13 36	63.9	36.1	2.32	3.64	7.64
22.0	2,592	1¾	do	1/3	do	3	8	100	44	106	40 50	27 59	12 51	68.5	31.5	2.60	3.79	7.64
28.5	2,592	1½	do	1/2	do	3	8	100	36	114½	40 50	24 44	16 06	60.6	39.4	2.80	4.63	6.14
28.5	2,592	1½	do	1/2	do	3	8	100	36	113	38 50	24 25	14 25	62.9	37.1	2.91	4.63	6.14
28.5	2,592	1½	do	1/2	do	3	8	96	36	88	40 50	19 48	21 02	48.5	51.5	2.16	4.44	6.14
28.5	2,592	1½	do	1/2	do	3	8	96	36	88	40 50	19 21	21 29	47.4	52.6	2.11	4.44	6.14
28.5	2,592	1½	do	1/2	do	3	8	96	36	100	40 50	22 30	18 20	55.1	44.9	2.45	4.44	6.14
16.4	3,072	1¼	do	1/3⅝	do	3	6	97	36	85	40 50	18 53	21 57	46.4	53.6	2.08	4.49	6.14
25.7	2,592	1–¼	do	1/2	do	3	8	90	34	132	40 50	29 55	10 55	73.3	26.7	3.23	4.41	6.39
28.0	2,160	1/1½	do	1/1½	do	3	8	98	24	136½	40 50	19 56	20 54	48.8	51.2	3.34	6.85	3.88
28.8	2,080	1/1½	do	1/1½	do	3	8	100	24	96½	40 50	13 49	27 01	33.8	66.2	2.36	6.94	3.88
25.3	2,208	1/1¾	do	1/1¾	do	3	8	100	24	175	39 50	25 12	14 38	63.3	36.7	4.39	6.94	3.88
25.3	2,208	1/1¾	do	1/1¾	do	3	8	90	24	175½	40 50	28 05	12 45	68.8	31.2	4.30	6.25	4.51
28.2	2,080	1/1½	do	1/1½	do	3	8	100	24	86	30 40	12 23	18 17	40.4	59.6	2.81	6.94	3.88
28.2	2,080	1/1½	do	1/1½	do	3	8	100	24	127½	26 40	18 22	8 18	68.9	31.1	4.78	6.94	3.88
23.7	2,304	1½	do	1½	do	3	8	100	26	155	40 50	24 11	16 39	59.2	40.8	3.80	6.41	4.26
23.7	2,304	1½	do	1½	do	3	8	100	26	116	26 40	18 06	8 34	67.9	32.1	4.35	6.41	4.26
24.9	1,920	1/1¾	do	1/1¾	do	3	8	90	26	129	37 50	22 22	15 28	59.1	40.9	3.41	5.77	4.89
24.9	1,920	1/1¾	do	1/1¾	do	3	8	100	26	175½	40 50	28 00	12 50	68.6	31.4	4.30	6.41	4.26
24.9	1,920	1/1¾	do	1/1¾	do	3	8	100	26	123	32 40	19 11	13 29	58.7	41.3	3.77	6.41	4.26
16.0	2,304	1/3½	do	1/3	do	3	8	90	26	108½	40 50	18 49	22 01	46.1	53.9	2.66	5.77	2.97
15.4	2,304	1/3½	do	1/3½	do	3	8	94	30	109	40 50	20 52	19 58	51.1	48.9	2.67	5.22	3.39
15.4	2,304	1/3½	do	1/3½	do	3	8	96	30	117	40 50	21 56	18 54	53.7	46.3	2.87	5.33	3.07
15.4	2,304	1/3½	do	1/3½	do	3	8	100	30	157	40 50	28 16	12 34	69.2	30.8	3.84	5.56	3.07
15.4	2,304	1/3½	do	1/3½	do	3	8	100	30	115½	40 50	20 47	20 03	50.9	49.1	2.84	5.56	3.07

15.4	2,304	1/3¼	.....do.........	1/3½	.....do........	3	8	91	30	288½	81 40	57 04	24 36	69.9	30.1	3.53	5.06	3.39
15.4	2,304	1/3¼	.....do.........	1/3½	.....do........	3	8	96	30	329½	81 40	61 47	19 53	75.6	24.4	4.03	5.33	3.07
15.4	2,304	1/3¼	.....do.........	1/3½	.....do........	3	8	90	30	136	40 50	27 12	13 38	66.6	33.4	3.33	5.00	3.39
13.7	3,300	1/24	Worsted.......	1/3½	.....do........	3	9	96	44	124	38 50	34 06	4 44	87.8	12.2	3.19	3.64	4.52
13.7	3,300	1/24	.....do.........	1/3½	.....do........	3	9	110	44	121½	40 50	29 10	11 40	71.4	28.6	2.98	4.17	4.52
17.0	3,600	1/30	.....do.........	1/2	.....do........	3	9	100	34	106	40 50	21 37	19 13	52.9	47.1	2.60	4.90	3.49
10.4	3,300	1/28	.....do.........	1/5	.....do........	3	9	90	44	64½	40 50	18 55	21 55	46.3	53.7	1.58	3.41	4.84
10.4	3,300	1/28	.....do.........	1/5	.....do........	3	9	100	44	66	37 50	17 25	20 25	46.0	54.0	1.74	3.79	4.52
10.4	3,300	1/28	.....do.........	1/5	.....do........	3	9	100	44	77½	40 50	20 28	20 22	50.1	49.9	7.90	3.79	4.52
10.4	3,300	1/28	.....do.........	1/5	.....do........	3	9	100	44	115½	40 50	30 49	10 01	75.5	24.5	2.83	3.79	4.52
10.4	3,300	1/28	.....do.........	1/5	.....do........	3	9	100	44	92	37 50	24 17	13 33	64.2	35.8	2.43	3.79	4.52
10.4	3,300	1/28	.....do.........	1/5	.....do........	3	9	100	44	114	40 50	30 06	10 44	73.7	26.3	2.79	3.79	4.52
10.4	3,300	1/28	.....do.........	1/5	.....do........	3	9	100	44	89	38 50	23 30	15 20	60.5	39.5	2.29	3.79	4.52
10.4	3,300	1/28	.....do.........	1/5	.....do........	3	9	90	44	90	40 50	26 24	14 26	64.7	35.3	2.20	3.41	4.84
10.4	3,300	1/28	.....do.........	1/5	.....do........	3	9	100	44	100	40 50	26 24	14 26	64.7	35.3	2.45	3.79	4.52
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	90	52	343	156 00	118 55	37 05	76.22	23.78	2.20	2.88	5.2
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	90	52	160	75 00	55 28	19 32	73.96	26.04	2.18	2.88	5.2
14.0	3,300	30/1	.....do.........	13¼/1	.....do........	2	6	115	60	237	114 00	74 11	39 49	64.91	35.09	2.08	3.19	4.3
17.2	3,900	30/1	.....do.........	10½/1	.....do........	2	6	115	60	53	24 00	16 35	7 25	69.12	30.88	2.21	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do........	2	6	115	60	654	326 00	204 44	121 16	62.8	37.2	2.01	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do........	2	6	115	60	282	165 00	88 17	76 43	53.5	46.5	1.71	3.19	4.3
17.2	3,900	30/1	.....do.........	10½/1	.....do........	2	6	115	60	306	160 00	95 50	64 10	59.89	40.11	1.91	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do........	2	6	115	60	216	165 00	67 37	97 23	40.98	59.02	1.31	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do........	2	6	115	60	357	160 00	111 27	48 33	69.66	30.34	2.22	3.19	4.6
14.0	3,900	30/1	.....do.........	13¼/1	.....do........	2	6	115	60	112	78 00	35 44	42 56	44.95	55.05	1.44	3.19	4.3
14.3	3,650	30/1	.....do.........	11½/1	.....do........	2	6	90	60	237	150 30	94 48	55 42	62.99	37.01	1.57	2.50	6.1
14.3	3,650	30/1	.....do.........	11½/1	.....do........	2	6	90	60	204½	140 00	81 48	58 12	58.4	41.6	1.46	2.50	6.1
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	90	60	186½	159 45	74 36	85 09	46.7	53.3	1.17	2.50	6.1
14.3	3,650	30/1	.....do.........	11½/1	.....do........	2	6	90	60	109	116 00	43 36	72 24	37.59	62.41	0.94	2.50	6.1
14.3	3,650	30/1	.....do.........	11½/1	.....do........	2	6	90	60	109	105 00	43 36	61 24	41.52	58.48	1.04	2.50	6.1
14.3	3,650	30/1	.....do.........	11½/1	.....do........	2	6	90	60	224	156 30	89 36	66 54	57.25	42.75	1.43	2.50	6.1
17.2	3,900	30/1	.....do.........	10½/1	.....do........	2	6	90	60	140	119 00	56 00	63 00	47.06	52.94	1.18	2.50	6.1
14.3	3,650	30/1	.....do.........	11½/1	.....do........	2	6	90	60	207	153 00	82 48	70 12	54.12	45.88	1.35	2.50	6.1
14.3	3,650	30/1	.....do.........	11½/1	.....do........	2	6	90	60	250	161 00	100 00	61 00	62.11	37.89	1.55	2.50	6.1
14.3	3.650	30/1	.....do.........	11½/1	.....do........	2	6	90	60	140	83 00	56 00	27 00	67.47	32.53	1.69	2.50	6.1
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	90	60	185	118 00	74 00	44 00	62.71	37.29	1.57	2.50	6.1
14.0	3.900	30/1	.....do.........	11½/1	.....do........	2	6	90	60	365	250 00	146 00	104 00	58.4	41.6	1.46	2.50	6.1
17.2	3,900	30/1	.....do.........	10½/1	.....do........	2	6	90	60	137	71 30	54 48	16 42	76.64	23.36	1.92	2.50	6.1
17.2	3,900	30/1	.....do.........	10½/1	.....do........	2	6	90	60	392	259 00	156 48	102 12	60.54	39.46	1.51	2.50	6.1
14.3	3,650	30/1	.....do.........	11½/1	.....do........	2	6	90	60	108	86 00	41 12	44 48	47.91	52.09	1.20	2.50	6.1
11.4	3,800	22/1	.....do.........	24/1	.....do........	1	3	60	67	289	304 00	193 38	110 22	63.69	36.31	0.95	1.49	9.9
12.7	4,200	30/1	.....do.........	22/1	.....do........	2	6	90	79	116	86 00	61 05	24 55	71.03	28.97	1.35	1.90	7.8
12.7	4,200	30/1	.....do.........	22/1	.....do........	2	6	90	79	294	239 00	154 50	84 10	64.79	35.21	1.23	1.90	7.8
13.0	3,300	30/1	.....do.........	13½/1	.....do........	2	6	90	32	71	37 00	15 09	21 51	40.95	59.05	1.92	4.69	5.2
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	95	52	115	65 00	37 46	27 14	58.11	41.89	1.77	3.04	4.4
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	95	52	176	77 00	57 48	19 12	75.06	24.94	2.29	3.04	4.4
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	95	52	126	69 00	41 23	27 37	59.97	40.03	1.83	3.04	4.4
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	95	52	159	81 00	52 13	28 47	64.47	35.53	1.96	3.04	4.4
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	95	52	126	58 00	41 23	16 37	71.34	28.66	2.17	3.04	4.4
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	95	52	159	65 00	52 13	12 47	80.34	19.66	2.45	3.04	4.4
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	115	52	548	267 00	148 40	118 20	55.68	44.32	2.05	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do........	2	6	115	52	22	9 00	5 59	3 01	66.48	33.52	2.44	3.69	3.9

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

LADIES' DRESS GOODS—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
											Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.			Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.0	3,300	30/1	Worsted	10½/1	Woolen	2	6	115	52	191	89 00	51 49	37 11	58.22	41.78	2.15	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	610	240 00	165 30	74 30	68.96	31.04	2.54	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	576	226 00	156 16	69 44	69.03	30.97	2.55	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	44	17 00	11 56	5 04	70.24	29.76	2.59	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	333	157 00	90 20	66 40	57.54	42.46	2.12	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	697	298 00	189 06	108 54	66.48	33.52	2.34	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	221	165 00	59 58	105 02	36.34	63.66	1.34	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	732	310 00	198 35	111 25	64.06	35.94	2.36	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	60	23 00	16 17	6 43	70.78	29.22	2.61	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	557	304 00	151 07	152 53	49.71	50.29	1.83	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	246	165 00	66 44	98 16	40.45	59.55	1.49	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	390	161 00	105 49	55 11	65.72	34.28	2.42	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	464	325 00	125 53	199 07	38.74	61.26	2.42	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	700	321 00	189 55	131 05	59.16	40.84	2.18	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	768	322 00	208 22	113 38	64.71	35.29	2.39	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	687	314 00	186 23	127 37	59.36	40.64	2.19	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	518	277 00	140 32	136 28	50.74	49.26	1.87	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	90	52	24	14 00	8 19	5 41	59.43	40.57	1.17	2.50	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	90	52	339	155 00	117 31	37 29	75.82	24.18	2.19	2.88	5.2
13.0	3,300	30/1	do	10½/1	do	2	6	90	52	161	102 30	55 49	46 41	54.45	45.55	1.57	2.88	5.2
13.0	3,300	30/1	do	10½/1	do	2	6	90	52	288	147 00	99 50	47 10	67.92	32.08	1.16	2.88	5.2
13.0	3,300	30/1	do	10½/1	do	2	6	90	52	152	76 00	52 41	23 19	69.33	30.67	2.00	2.88	5.2
13.0	3,300	30/1	do	10½/1	do	2	6	90	52	424	208 00	146 59	61 01	70.67	29.33	2.04	2.88	5.2
13.0	3,300	30/1	do	10½/1	do	2	6	90	52	391	189 30	135 33	53 57	71.53	28.47	2.06	2.88	5.2
13.0	3,300	30/1	do	10½/1	do	2	6	90	52	141	87 00	48 53	38 07	56.18	43.82	1.62	2.88	5.2
16.0	4,800	1/6	do	1/4	do	3	10	100	40	118	40 50	28 19	12 31	69.4	30.6	2.89	4.17	6.80

15.6	5,100	1/24	do	1/3	do	3	10	110	40	84	35 50	18 20	17 30	51.2	48.8	2.34	4.58	4.11
14.3	4,104	1/6	do	1/4	do	3	10	104	38	114	38 50	24 59	13 51	64.4	35.6	2.94	4.56	6.54
14.3	4,104	1/6	do	1/4	do	3	10	110	38	129½	40 50	26 50	14 00	65.7	34.3	3.17	4.82	6.54
17.1	5,100	1/24	do	1/3	do	3	10	103	44	80	37 50	20 30	17 20	54.2	45.8	3.55	3.90	4.52
17.1	5,100	1/24	do	1/3	do	3	10	100	44	70	40 50	18 29	22 21	45.3	54.7	1.71	3.79	4.52
13.6	1,350	1/3½	do	1/2	do	4	4	82	22	97½	29 20	15 42	13 38	53.5	46.5	3.32	6.21	3.9
13.6	1,350	1/3½	do	1/2	do	4	4	84	22	159¾	40 10	25 06	15 04	62.5	37.5	3.98	6.36	3.9
13.5	2,112	1/3½	do	1/3½	do	4	16	82	24	23½	6 10	4 08	2 02	67.0	33.0	3.81	5.69	3.02
13.5	2,112	1/3½	do	1/3½	do	4	16	82	24	151½	51 20	26 37	24 43	51.9	48.1	2.96	5.69	3.02
13.2	1,050	1/2	do	1/2	do	4	14	100	24	30	5 40	4 19	1 21	76.2	23.8	5.29	6.94	4.5
13.2	1,050	1/2	do	1/2	do	4	14	100	24	84	16 40	12 06	4 34	72.6	27.4	5.04	6.94	4.5
13.4	2,112	1/3½	do	1/3½	do	3	6	92	24	167¼	39 20	26 11	13 09	66.6	33.4	3.34	6.39	3.02
10.5	1,512	1/3½	do	1/3½	do	3	4	84	26	66	49 10	12 16	36 54	24.9	75.1	1.34	5.38	4.5
11.2	1,632	1/3½	do	1/3½	do	3	8	82	26	38	13 40	7 14	6 26	52.9	47.1	2.78	5.26	3.4
11.2	1,632	1/3½	do	1/3½	do	3	8	82	26	31½	11 40	6 00	5 40	51.4	48.6	2.70	5.26	3.4
10.5	1,512	1/3½	do	1/3½	do	3	4	84	26	110¾	26 00	20 34	5 26	79.1	20.9	4.26	5.38	4.5
10.5	1,512	1/3½	do	1/3½	do	3	4	84	26	113¾	25 20	21 08	4 12	83.4	16.6	4.49	5.38	4.5
11.5	1,650	1/3½	do	1/3½	do	3	6	84	28	66	23 20	13 12	10 08	56.6	43.4	2.83	5.00	4.5
11.5	1,650	1/3½	do	1/3½	do	3	4	84	28	22½	8 30	4 30	4 00	52.9	47.1	2.65	5.00	4.7
11.4	1,690	1/3½	do	1/3½	do	4	7	92	28	49¾	15 40	9 02	6 38	57.7	42.3	3.16	5.48	3.6
11.5	1,650	1/3½	do	1/3½	do	3	6	100	28	154	51 00	25 52	25 08	50.7	49.3	3.02	5.95	4.5
7.3	1,650	1/3½	do	1/3½	do	4	6	92	28	104½	24 20	19 05	5 15	78.4	21.6	4.29	5.48	3.7
11.4	1,680	1/3½	do	1/3½	do	3	14	84	30	114¾	39 30	24 35	14 55	62.2	37.8	2.91	4.67	3.7
11.8	1,600	1/3½	do	1/3½	do	4	4	82	30	56	30 20	12 18	18 02	40.5	59.5	1.85	4.55	3.7
11.1	1,656	1/3½	do	1/3½	do	3	14	82	30	124¾	41 10	27 23	13 47	66.5	33.5	3.03	4.55	3.7
12.5	1,680	1/3½	do	1/3½	do	4	14	92	30	62	30 00	12 08	17 52	40.4	59.6	2.07	5.11	3.7
11.7	1,792	1/3½	do	1/3½	do	4	10	92	30	11½	4 30	2 15	2 15	50.0	50.0	2.56	5.11	3.7
11.2	1,680	1/3½	do	1/3½	do	4	6	92	30	16¼	7 30	3 14	4 16	43.1	56.9	2.20	5.11	3.7
11.4	1,680	1/3½	do	1/3½	do	3	12	92	30	145¾	40 40	28 31	12 09	70.1	29.9	3.58	5.11	3.7
11.7	1,680	1/3½	do	1/3½	do	3	14	92	30	179¾	51 00	35 10	15 50	69.0	31.0	3.52	5.11	3.7
11.6	1,680	1/3½	do	1/3½	do	4	6	92	30	126¾	36 20	24 48	11 32	78.3	21.7	3.49	5.11	3.7
11.8	1.600	1/3½	do	1/3½	do	4	4	92	30	32	9 30	6 15	3 15	65.8	34.2	3.37	5.11	3.7
12.2	1,680	1/3½	do	1/3½	do	4	6	92	30	149½	53 00	29 15	23 45	55.2	44.8	2.82	5.11	3.7
11.2	1,680	1/3½	do	1/3½	do	4	6	100	30	131½	37 00	23 40	13 20	64.0	36.0	3.56	5.55	4.5
11.4	1,680	1/3½	do	1/3½	do	3	14	92	30	221¼	54 40	43 17	11 23	79.2	20.8	4.05	5.11	3.7
13.4	2,592	1/3½	do	1/3½	do	3	8	92	30	83¾	25 00	16 18	8 42	65.2	34.8	3.33	5.11	3.86
11.0	1,680	1/3½	do	1/3½	do	4	6	92	30	24½	13 10	4 48	8 22	36.5	63.5	1.87	5.11	3.7
11.4	1,680	1/3½	do	1/3½	do	3	14	92	30	98¼	30 30	19 16	11 14	63.2	36.8	3.23	5.11	3.7
11.4	1,680	1/3½	do	1/3½	do	3	4	100	30	170¾	53 30	30 45	22 45	57.5	42.5	3.19	5.55	3.7
11.8	1,600	1/3½	do	1/3½	do	4	4	92	30	139	52 40	27 12	25 28	51.6	48.4	2.64	5.11	3.7
11.1	1,656	1/3½	do	1/3½	do	3	14	92	30	107¼	28 50	20 59	7 51	72.8	27.2	3.72	5.11	3.7
11.3	1,664	1/3½	do	1/3½	do	4	10	92	30	149½	43 50	29 15	14 35	66.7	33.3	3.41	5.11	3.7
11.2	1,680	1/3½	do	1/3½	do	4	10	100	30	85¾	26 50	15 26	11 24	57.6	42.4	3.20	5.55	4.5
12.5	1,728	1/3½	do	1/3½	do	3	14	92	30	47	12 40	9 12	3 28	72.6	27.4	3.71	5.11	3.7
11.7	1,920	1/3½	do	1/3½	do	3	10	82	32	85	26 10	19 54	6 16	76.0	24.0	3.25	4.27	3.84
11.7	1,920	1/3½	do	1/3½	do	3	10	82	32	24	11 00	7 29	3 31	68.0	32.0	2.18	4.27	3.8
11.4	1,680	1/3½	do	1/3½	do	3	14	92	32	22	18 10	4 36	13 34	25.3	74.7	1.21	4.79	3.7
8.5	2,112	1/5½	do	1/5½	do	4	8	84	34	63	39 10	15 18	23 52	39.1	60.9	1.61	4.12	3.75
9.0	2,112	1/5½	do	1/5½	do	4	4	82	34	31	12 30	7 43	4 47	61.7	38.3	2.48	4.10	3.75
8.5	2,112	1/5½	do	1/5½	do	4	4	82	34	80½	30 50	20 02	10 48	65.9	34.1	2.61	4.10	3.75
9.0	2,112	1/5½	do	1/5½	do	4	6	92	34	59½	30 30	13 12	17 18	43.3	56.7	1.95	4.50	3.75
11.1	1,656	1/3½	do	1/3½	do	4	8	92	34	64¼	24 50	14 15	10 35	57.4	42.6	2.59	4.50	3.75
10.4	2,592	1/5½	do	1/5½	do	4	10	82	36	121	53 50	31 52	21 58	59.2	40.8	2.25	3.80	3.85

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

LADIES' DRESS GOODS—Continued.

MALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m*	*H. m.*					
10.0	2,592	1/3½	Worsted	1/3½	Woolen	3	10	84	36	101½	35 20	26 10	9 10	74.1	25.9	2.88	3.88	3.85
10.0	2,592	1/5½	do	1/5½	do	3	10	84	36	72	24 50	18 31	6 19	74.6	25.4	2.90	3.88	3.85
10.0	2,592	1/5½	do	1/5½	do	3	10	82	36	169¼	54 10	44 35	9 35	82.3	17.7	3.12	3.80	3.85
10.0	2,592	1/5½	do	1/5½	do	3	10	84	36	38¼	12 00	9 50	2 10	81.9	18.1	3.19	3.88	3.85
10.0	2,592	1/5½	do	1/5½	do	3	10	82	36	134	43 10	35 18	7 52	81.8	18.2	3.10	3.80	3.85
10.1	2,592	1/5½	do	1/5½	do	4	10	84	36	96½	37 30	24 53	12 37	66.4	33.6	2.58	3.88	3.85
10.0	2,592	1/5½	do	1/5½	do	3	10	84	36	61½	26 50	15 49	11 01	57.8	42.2	2.29	3.88	3.85
10.0	2,592	1/5½	do	1/5½	do	3	10	84	36	17½	6 30	4 30	2 00	69.2	30.8	2.69	3.88	3.85
10.1	2,592	1/5½	do	1/5½	do	4	8	92	36	131¼	54 00	30 49	23 11	57.1	42.9	2.43	4.26	3.85
10.5	2,592	1/5½	do	1/5½	do	4	10	92	36	97¾	32 50	22 57	9 53	69.9	30.1	2.98	4.26	3.85
10.5	2,592	1/5½	do	1/5½	do	4	10	92	36	48¾	17 10	11 27	5 43	66.7	33.3	2.84	4.26	3.85
10.4	2,592	1/5½	do	1/5½	do	4	10	92	36	152	47 50	35 41	12 09	74.6	25.4	3.18	4.26	3.85
10.1	2,592	1/5½	do	1/5½	do	4	10	92	36	172¾	54 10	40 34	13 36	74.9	25.1	3.19	4.26	3.85
9.2	2,232	1/5½	do	1/5½	do	4	8	92	36	75	20 20	17 37	2 43	86.6	13.4	3.69	4.26	3.8
10.1	2,592	1/5½	do	1/5½	do	4	10	92	36	170¾	53 30	40 05	13 25	76.3	23.7	3.25	4.26	3.85
10.5	2,592	1/5½	do	1/5½	do	4	10	92	36	45½	16 10	10 41	5 29	66.1	33.9	2.82	4.26	3.85
10.5	2,592	1/5½	do	1/5½	do	4	10	92	36	66	20 50	15 30	5 20	74.4	25.6	3.17	4.26	3.85
10.1	2,592	1/5½	do	1/5½	do	4	10	92	36	184	53 00	43 12	9 48	81.5	18.5	3.47	4.26	3.85
11.0	1,680	1-3½	do	1-3½	do	2	4	100	26	483	122 30	75 21	47 09	61.5	38.5	3.94	6.41	2.3
11.3	1,680	1-3½	Woolen	1-3½	do	2	4	100	26	190	48 00	29 38	18 22	61.7	38.3	3.96	6.41	2.3
12.0	1,824	1-3½	do	1-3½	do	2	4	110	26	209¾	47 30	29 45	17 45	62.6	37.4	4.42	7.05	2.2
11.0	1,680	1-3½	do	1-3½	do	2	4	100	26	170	50 30	26 31	23 59	52.5	47.5	3.37	6.41	3.0
11.8	1,728	1-3½	do	1-3½	do	2	12	90	28	277	74 00	51 43	22 17	67.0	33.0	4.31	5.36	2.5
12.8	2,304	1-4	do	1-4	do	2	10	90	28	106½	31 30	19 53	11 37	63.1	36.9	3.38	5.35	3.3
13.6	2,400	1-4½	do	1-4	do	2	4	100	36	140	45 00	30 14	14 46	07.2	32.8	3.11	4.68	2.9

12.5	2,304	1-3½	.....do.........	1-3½	.....do.........	2	4	90	36	139	45 00	33 22	11 38	74.1	25.9	3.09	4.17	3.3
12.8	2,304	1-4	.....do.........	1-4	.....do.........	2	4	100	36	163½	47 30	35 19	12 11	74.3	25.7	3.44	4.63	3.3
13.0	2,400	1-4	.....do.........	1-4	.....do.........	2	4	110	36	137¾	48 00	27 03	20 57	36.4	63.6	2.87	5.09	2.9
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	88½	11 00	7 48	3 12	70.9	29.1	8.02	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	192½	22 00	18 02	3 58	81.9	18.1	8.86	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	136½	24 10	12 04	12 06	49.9	50.1	5.65	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	268¾	44 40	23 43	20 57	53.1	46.9	6.01	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	241¾	51 30	21 23	30 07	41.5	58.5	4.69	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	180	18 30	15 55	2 35	86.0	14.0	9.73	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	214½	26 40	18 56	7 44	71.0	29.0	8.03	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	253½	35 30	22 22	13 08	63.0	37.0	7.14	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	393¾	51 30	34 47	16 43	67.6	32.4	7.06	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	280	41 30	24 46	16 44	59.7	40.3	6.75	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	314½	51 30	27 47	23 43	54.0	46.0	6.11	11.31	2.95
13.7	800	1/1½	.....do.........	1/1½	.....do.........	3	8	95	14	325¾	51 30	28 54	22 36	56.1	43.9	6.35	11.31	2.95
13.6	1,680	1-3	.....do.........	1-3	.....do.........	5	10	100	30	143	33 10	25 44	7 26	77.6	22.4	4.31	5.56	5.2
13.3	1,680	1-3	.....do.........	1-3	.....do.........	5	10	100	30	146	33 40	26 17	7 23	78.1	21.9	4.34	5.56	5.2
14.0	1,680	1-3	.....do.........	1-3	.....do.........	5	10	95	30	144	35 20	27 17	8 03	77.2	22.8	4.08	5.28	5.2
10.6	3,000	2/32	Worsted.......	1/20	Worsted.......	1	8	100	42	138	45 50	34 46	11 04	75.9	24.1	3.01	3.97	3.969
10.6	3,000	2/32	.....do.........	1/20	.....do.........	1	8	100	42	137½	45 50	34 39	11 11	75.6	24.4	3.00	3.97	3.969
10.6	3,000	2/32	.....do.........	1/20	.....do.........	1	8	100	42	143	45 50	36 02	9 48	78.6	21.4	3.12	3.97	3.969
10.6	3,000	2/32	.....do.........	1/20	.....do.........	1	8	100	42	142½	45 50	35 54	9 56	78.3	21.7	3.11	3.97	3.969
10.6	3,000	2/32	.....do.........	1/20	.....do.........	1	8	100	42	122½	45 50	30 52	14 58	67.3	32.7	2.67	3.97	3.969
10.6	3,000	2/32	.....do.........	1/20	.....do.........	1	8	90	42	137½	45 50	38 30	7 20	84.0	16.0	3.00	3.57	4.3
8.1	3,168	2/36	.....do.........	1/30	.....do.........	1	8	90	48	33	15 20	10 20	5 00	67.4	32.6	2.15	3.19	2.97

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

LADIES' DRESS GOODS—Continued.

FEMALE WEAVERS.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.6	1,370	1/3¼	Woolen	1/3¼	Woolen	4	4	84	22	40½	9 20	6 22	2 58	68.2	31.8	4.34	6.36	3.9
13.2	1,050	1/3¼	do	1/3¼	do	4	14	100	24	76½	16 10	11 00	5 10	68.0	32.0	4.25	6.94	4.5
13.2	1,050	1/3¼	do	1/3¼	do	4	14	100	24	66¾	13 20	9 36	3 44	72.0	28.0	5.01	6.94	4.5
10.5	1,512	1/3¼	do	1/3¼	do	3	4	84	26	131½	33 40	24 25	9 15	72.5	27.5	3.91	5.38	4.5
11.4	1,680	1/3¼	do	1/3¼	do	3	14	82	30	148	42 10	32 29	9 41	77.0	23.0	3.51	4.56	3.7
12.5	1,728	1/3¼	do	1/3¼	do	4	8	92	30	121¾	36 50	23 50	13 00	64.7	35.3	3.31	5.11	4.7
11.4	1,680	1/3¼	do	1/3¼	do	3	12	100	30	62½	18 45	11 15	7 30	60.0	40.0	3.33	5.56	3.7
11.4	1,680	1/3¼	do	1/3¼	do	3	12	100	30	110½	30 00	19 50	10 10	66.1	33.9	3.68	5.56	3.7
11.3	1,664	1/3¼	do	1/3¼	do	4	10	92	30	126¾	49 10	25 48	23 22	52.5	47.5	2.58	5.11	3.7
11.4	1,680	1/3¼	do	1/3¼	do	3	14	92	30	89½	38 30	17 30	21 00	45.5	54.5	2.32	5.11	3.7
11.3	1,664	1/3¼	do	1/3¼	do	4	10	92	30	58¾	19 50	11 27	8 23	57.7	42.3	2.95	5.11	3.7
9.0	2,112	1/5¼	do	1/5¼	do	4	4	84	34	18	4 40	4 22	18	91.4	8.6	3.86	4.12	3.75
8.5	2,112	1/5¼	do	1/5¼	do	4	4	84	34	67¼	32 15	16 20	15 55	50.6	49.4	2.09	4.12	3.75
9.0	2,112	1/5¼	do	1/5¼	do	4	4	84	34	84¼	36 00	20 28	15 32	56.9	43.1	2.34	4.12	3.75
8.5	2,112	1/5¼	do	1/5¼	do	4	4	82	34	79½	36 00	19 47	16 13	55.0	45.0	2.21	4.10	3.85
8.5	2,112	1/5¼	do	1/5¼	do	4	8	100	34	46	18 40	9 23	9 17	50.3	49.7	2.46	4.90	3.75
10.1	2,592	1/5¼	do	1/5¼	do	4	10	92	36	140¾	46 20	33 03	13 17	71.3	28.7	3.04	4.26	3.85
10.1	2,592	1/5¼	do	1/5¼	do	4	8	95	36	180½	49 20	41 02	8 18	83.2	16.8	4.15	4.66	3.85
10.5	2,592	1/5¼	do	1/5¼	do	4	10	92	36	151¼	49 20	35 31	13 49	72.0	28.0	3.07	4.26	3.85
12.9	2,400	1/4	do	1/5¼	do	3	8	100	36	139½	40 40	30 08	10 32	74.1	25.9	3.43	4.63	5.0
10.1	2,592	1/4	do	1/5¼	do	4	10	92	36	128½	49 20	30 10	19 10	61.1	38.9	2.60	4.26	3.85
10.0	2,592	1/4	do	1/5¼	do	3	10	92	36	79½	27 20	18 40	8 40	68.3	31.7	2.91	4.26	3.85
8.9	2,240	1/4	do	1/5¼	do	3	8	92	38	138¾	49 50	34 23	15 27	69.0	31.0	2.78	4.04	3.85
13.7	800	1/1¼	do	1/1¼	do	3	8	95	14	129¼	18 30	11 26	7 04	61.8	38.2	6.99	11.31	2.95
13.7	800	1/1¼	do	1/1¼	do	3	8	95	14	350¾	44 10	31 01	13 09	70.2	29.8	7.94	11.31	2.95
13.7	800	1/1¼	do	1/1¼	do	3	8	95	14	302¾	45 10	26 46	18 24	59.3	40.7	6.70	11.31	2.95

13.7	800	1/1½	....do........	1/1½	....do........	3	8	95	14	276	45 50	24 24	21 26	53.2	46.8	6.02	11.31	2.95
13.7	800	1/1½	....do........	1/1½	....do........	3	8	95	14	351¾	43 40	31 06	12 34	71.2	28.8	8.06	11.31	2.95
13.7	800	1/1½	....do........	1/1½	....do........	3	8	95	14	311¼	44 40	27 31	17 09	61.1	38.9	7.01	11.31	2.95
13.7	800	1/1½	....do........	1/1½	....do........	3	8	95	14	303¼	45 50	26 49	19 01	58.5	41.5	6.62	11.31	2.95
13.7	800	1/1½	....do........	1/1½	....do........	3	8	95	14	280½	45 50	24 48	21 02	54.1	45.9	6.12	11.31	2.95
13.7	800	1/1½	....do........	1/1½	....do........	3	8	95	14	185	29 20	16 22	12 58	55.8	44.2	6.31	11.31	2.95
10.6	3,000	2/32	Worsted.......	1/20	Worsted.......	1	8	90	42	116	45 50	18 34	27 16	40.5	59.5	2.53	6.25	4.3
10.6	3,000	2/32	....do........	1/20	....do........	1	8	90	42	63½	40 50	17 47	23 03	43.6	56.4	1.56	3.57	3.4
14.3	4,104	1/6	Woolen........	1/4	Woolen.......	3	10	98	38	116	39 50	26 59	12 51	67.7	32.3	2.91	4.30	6.51
16.0	4,800	1/6	....do........	1/4	....do........	3	10	100	40	90	40 50	21 36	19 14	52.9	47.1	2.20	4.17	6.89
16.0	4,800	1/6	....do........	1/4	....do........	3	10	98	40	90½	40 50	22 38	18 12	55.4	44.6	2.22	4.00	6.89
16.0	4,800	1/6	....do........	1/4	....do........	3	10	100	40	78	25 40	18 43	6 57	72.9	27.1	3.04	4.17	6.89
17.1	5,100	1/24	Worsted.......	1/3	....do........	3	10	100	44	73	40 50	19 16	21 34	47.2	52.8	1.79	3.79	4.52
17.1	5,100	1/24	....do........	1/3	....do........	3	10	100	44	94½	40 50	24 57	15 53	61.1	38.9	2.31	3.79	4.52
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	828	326 00	224 38	101 22	68.91	31.09	2.54	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	392	210 00	106 21	103 39	50.64	49.36	1.87	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	525	268 00	142 26	125 34	53.15	46.85	1.96	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	94	68 00	25 30	42 30	37.5	62.5	1.38	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	193	92 00	52 22	39 38	56.92	43.08	2.10	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	281	142 00	76 14	65 46	53.69	46.31	1.98	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	120	53 00	32 33	20 27	61.42	38.58	2.26	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	388	159 00	105 16	53 44	66.21	33.79	2.44	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	217	103 00	58 52	44 08	57.15	42.85	2.11	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	433	160 00	117 28	42 32	73.42	26.58	2.71	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	47	28 00	12 45	15 15	45.54	54.46	1.68	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	315	133 00	85 28	47 32	64.26	35.74	2.37	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	382	160 00	103 38	56 22	64.77	35.23	2.39	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	260	163 00	70 32	92 28	43.27	56.73	1.60	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	282	136 00	76 30	59 30	56.25	43.75	2.07	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	325	132 00	88 01	43 59	66.79	33.21	2.46	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	350	148 00	94 57	53 03	64.16	35.84	2.36	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	304	159 00	82 29	76 31	51.88	48.12	1.91	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	318	161 00	86 16	74 44	53.58	46.42	1.98	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	354	163 00	96 03	66 57	58.93	41.07	2.17	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	321	143 00	87 05	55 55	60.9	39.1	2.24	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	20	19 00	5 26	13 34	28.6	71.4	1.05	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	280	138 00	75 58	62 02	55.05	44.95	2.03	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	309	158 00	83 50	74 10	53.06	46.94	1.96	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	439	161 00	119 06	41 54	73.98	26.02	2.73	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	187	76 00	50 44	25 16	66.75	33.25	2.46	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	228	82 00	61 51	20 09	75.43	24.57	2.78	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	432	162 00	117 12	44 48	72.35	27.65	2.67	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	382	162 00	103 38	58 22	63.97	36.03	2.36	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	325	144 00	88 10	55 50	61.23	38.77	2.26	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	325	159 00	88 10	70 50	55.45	44.55	2.04	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	319	159 00	86 33	72 27	54.43	45.57	2.01	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	729	319 00	197 47	121 13	62.0	38.0	2.29	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	529	262 00	143 31	118 29	54.78	45.22	2.02	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	760	308 00	206 11	101 49	66.94	33.06	2.47	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	613	318 00	166 19	151 41	52.3	47.7	1.93	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	490	317 00	132 56	184 04	41.93	58.07	1.55	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	665	272 00	180 25	91 35	66.33	33.67	2.44	3.69	3.9
13.0	3,300	30/1	....do........	10½/1	....do........	2	6	115	52	188	165 00	51 00	114 00	30.9	69.1	1.14	3.69	3.9

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

LADIES' DRESS GOODS—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.0	3,300	30/1	Worsted	10½/1	Woolen	2	6	115	52	840	314 00	227 54	86 06	72.58	27.42	2.68	3.69	3.69
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	607	316 00	164 41	151 19	52.11	47.89	1.92	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	525	237 00	142 26	94 34	60.1	39.9	2.22	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	303	161 00	82 12	78 48	51.06	48.94	1.88	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	682	269 00	185 02	83 58	68.79	31.21	2.54	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	654	323 00	177 26	145 34	54.93	45.07	2.02	3.69	3.9
10.4	3,300	1/28	do	1/5	do	3	9	90	44	93½	40 50	27 26	13 24	67.2	32.8	2.25	3.41	4.84
10.4	3,300	1/28	do	1/5	do	3	9	100	44	92	38 20	24 17	14 03	63.3	36.7	2.40	3.79	4.82
10.4	3,300	1/28	do	1/5	do	3	9	96	44	91	40 50	25 01	15 49	61.3	38.7	2.23	3.64	4.82
10.4	3,300	1/28	do	1/5	do	3	9	100	44	96	40 50	25 20	15 30	62.0	38.0	2.35	3.79	4.82
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	534	231 30	144 53	86 37	62.58	37.42	2.31	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	547	238 30	148 24	90 06	62.22	37.78	2.29	3.68	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	736	300 00	199 41	100 19	66.56	33.44	2.45	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	650	265 00	176 21	88 39	66.55	33.45	2.45	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	293	143 30	79 29	64 01	55.39	44.61	2.04	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	606	265 00	164 25	100 35	62.04	37.96	2.29	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	95	74 30	25 46	48 44	34.59	65.41	1.28	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	416	210 00	112 52	97 08	53.74	46.26	1.55	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	138	59 30	37 26	22 04	62.92	37.08	2.32	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	207	123 30	56 10	67 20	45.47	54.53	1.68	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	185	89 00	50 11	38 49	56.39	43.61	2.08	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	498	209 00	135 07	73 53	64.65	35.35	2.38	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	535	285 30	145 09	140 21	50.84	49.16	1.87	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	533	296 00	144 37	151 23	48.85	51.15	1.80	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	702	306 30	190 28	116 02	62.14	37.86	2.29	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	1	6	115	52	532	293 30	144 20	149 10	49.18	50.82	1.81	3.69	3.9

13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	543	247 00	147 19	99 41	59.64	40.36	1.20	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	580	276 30	157 22	119 08	56.91	43.09	2.10	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	650	306 30	176 21	130 09	57.54	42.46	2.12	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	500	275 00	135 39	139 21	49.33	50.67	1.82	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	632	279 30	171 28	108 02	61.35	38.65	2.26	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	115	50 00	31 12	18 48	62.4	37.6	2.30	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	598	284 00	162 14	121 46	57.13	42.87	2.11	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	437	235 30	118 34	116 56	50.34	49.66	1.86	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	404	176 30	109 37	66 53	62.1	37.9	2.29	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	552	284 00	149 46	134 14	52.73	47.27	1.94	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	330	154 00	80 32	64 28	58.14	41.86	2.14	3.69	3.9
17.2	3,900	30/1	.....do..........	10½/1	.....do.........	2	6	115	60	20	9 00	6 16	2 44	69.63	30.37	2.22	3.19	4.3
17.2	3,900	30/1	.....do..........	10½/1	.....do.........	2	6	115	60	88	49 00	27 33	21 27	56.22	43.78	1.80	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	2	6	115	60	348	165 00	108 56	56 04	66.02	33.98	2.11	3.19	4.3
17.2	3,900	30/1	.....do..........	10½/1	.....do.........	2	6	115	60	168	83 00	52 35	30 25	63.35	36.65	2.02	3.19	4.3
12.7	4,150	30/1	.....do..........	14/1	.....do.........	2	6	115	60	152	143 00	47 35	95 25	33.28	66.72	1.06	3.19	4.3
17.2	3,900	30/1	.....do..........	10½/1	.....do.........	2	6	115	60	234	152 00	73 15	78 45	48.19	51.81	1.54	3.19	4.8
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	2	6	115	60	397	154 00	124 17	29 43	80.7	19.3	2.58	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	2	6	115	60	399	165 00	124 54	40 06	75.7	24.3	2.42	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	2	6	115	60	400	159 00	125 13	33 47	78.75	21.25	2.52	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	2	6	115	60	284	171 00	88 54	82 06	51.99	48.01	1.66	3.19	4.3
17.2	3,900	30/1	.....do..........	10½/1	.....do.........	2	6	115	60	202	126 00	63 14	62 46	50.18	49.82	1.60	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	2	6	115	60	284	129 00	88 54	40 06	68.91	31.09	2.20	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	2	6	115	60	171	165 00	53 22	111 38	32.44	67.56	1.04	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	2	6	115	60	282	162 00	88 17	73 43	54.49	45.51	1.74	3.19	4.3
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	60	69	35 00	21 36	13 24	61.71	38.29	1.97	3.19	3.9
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	1	6	115	60	515	324 00	161 13	162 47	49.76	50.24	1.59	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	1	6	115	60	342	170 30	107 04	63 26	62.79	37.21	2.01	3.19	4.3
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	60	127	70 00	39 46	30 14	56.8	43.2	1.81	3.19	3.9
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	1	6	115	60	274	162 00	85 46	76 14	52.94	47.06	1.69	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	1	6	115	60	279	137 00	87 20	49 40	63.75	36.25	2.04	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	1	6	115	60	148	61 30	46 20	15 10	75.33	24.67	2.41	3.19	4.3
14.0	3,900	30/1	.....do..........	13¼/1	.....do.........	1	6	115	60	34	19 00	10 38	8 22	56.0	44.0	1.79	3.19	4.3
14.3	3,650	30/1	.....do..........	11½/1	.....do.........	2	6	90	60	229	121 30	91 36	29 54	75.39	24.61	1.88	2.50	6.1
11.4	3,800	22/1	.....do..........	24/1	Worsted.......	1	3	60	67	275	305 00	184 15	120 45	60.41	39.59	.90	1.49	9.9
12.7	4,200	22/1	.....do..........	22/1	.....do.........	2	6	90	79	148	126 00	77 57	48 03	61.87	38.13	1.17	1.89	7.8
13.0	3,300	30/1	.....do..........	10½/1	Woolen.......	1	6	115	52	579	275 00	157 05	117 55	57.12	42.88	2.11	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	548	296 30	148 40	147 50	50.14	49.86	1.85	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	450	212 30	122 05	90 25	57.45	42.55	2.12	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	293	140 30	79 29	61 01	56.58	43.42	2.09	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	220	108 00	59 41	48 19	55.27	44.73	2.04	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	581	276 30	157 38	118 52	57.01	42.99	2.10	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	464	269 30	125 53	143 37	46.71	53.29	1.72	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	1	6	115	52	142	55 00	38 32	16 28	70.05	29.95	2.58	3.69	3.9
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	2	6	90	52	194	94 00	67 15	26 45	71.54	28.46	2.06	2.88	5.2
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	2	6	90	52	257	107 00	89 05	17 55	83.26	16.74	2.40	2.88	5.2
14.3	3,650	30/1	.....do..........	11½/1	.....do.........	2	6	90	52	201	88 30	69 41	18 49	78.73	21.27	2.27	2.88	6.1
13.9	3,400	30/1	.....do..........	10½/1	.....do.........	2	6	90	52	615	343 30	213 12	130 18	62.07	37.93	1.79	2.88	5.2
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	2	6	90	52	403	187 00	139 43	47 17	74.71	25.29	2.16	2.88	5.2
12.5	3,700	34/1	.....do..........	11½/1	.....do.........	2	6	90	52	101	55 00	35 01	19 59	63.65	36.35	1.84	2.88	5.2
12.5	3,300	34/1	.....do..........	11½/1	.....do.........	2	6	90	52	179	91 00	62 03	28 57	68.19	31.81	1.97	2.88	5.2
13.0	3,300	34/1	.....do..........	10½/1	.....do.........	2	6	90	52	22	12 00	7 38	4 22	63.58	36.42	1.17	1.88	5.2
13.0	3,300	30/1	.....do..........	10½/1	.....do.........	2	6	90	52	143	68 30	49 34	18 56	72.36	27.64	1.06	1.76	5.2

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

LADIES' DRESS GOODS—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
											Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.			Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
13.0	3,300	30/1	Worsted	10½/1	Woolen	2	6	115	52	615	320 00	166 51	153 09	52.14	47.86	1.92	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	308	161 00	83 34	77 26	51.9	48.1	1.91	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	324	138 00	87 54	50 06	63.7	36.3	2.35	3.69	3.9
17.2	3,900	30/1	do	10½/1	do	2	6	115	52	265	170 00	71 37	98 23	42.13	57.87	1.55	3.69	4.3
17.2	3,900	30/1	do	10½/1	do	2	6	115	52	329	181 00	89 16	91 44	49.31	50.69	1.82	3.69	4.3
14.0	3,900	30/1	do	13½/1	do	2	6	115	52	239	131 00	64 51	66 09	49.5	50.5	1.82	3.69	4.3
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	272	152 00	73 47	78 13	48.55	51.45	1.79	3.69	3.9
13.2	3,300	28/1	do	1½/1	do	3	12	115	52	496	236 00	134 34	101 26	57.02	42.98	2.10	3.69	6.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	680	320 00	184 29	135 31	57.65	42.35	2.13	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	744	311 00	201 51	109 09	64.9	35.1	2.39	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	372	178 00	100 56	77 04	56.7	43.3	2.09	3.69	3.9
8.0	8,000	42/1	do	5/1	do	2	10	115	65	84	104 00	28 29	75 31	27.39	72.61	.81	2.95	6.5
15.1	3,700	30/1	do	10½/1	do	3	10	115	78	30	28 00	12 13	15 47	43.61	56.39	1.07	2.46	6.8
12.8	3,300	30/1	do	13½/1	do	3	12	90	85	156	142 00	88 24	53 36	62.25	37.75	1.10	1.76	8.4
12.8	3,300	30/1	do	13½/1	do	3	12	90	85	54	43 30	30 36	12 54	70.34	29.66	1.24	1.76	8.4
12.8	3,300	30/1	do	13½/1	do	3	6	90	85	18	15 00	10 12	4 48	68.0	32.0	1.20	1.76	8.4
13.2	3,300	28/1	do	13½/1	do	3	12	90	85	51	48 00	28 54	19 06	60.21	39.79	1.06	1.76	8.4
13.2	3,300	28/1	do	13½/1	do	3	12	115	85	118	98 00	52 20	45 40	53.4	46.6	1.20	2.25	6.9
12.8	3,300	30/1	do	13½/1	do	3	6	115	85	158	107 00	70 04	36 56	65.48	34.52	1.48	2.25	6.9
13.2	3,300	28/1	do	13½/1	do	3	12	115	85	116	75 00	51 27	23 33	68.6	31.4	1.55	2.25	6.9
13.2	3,300	28/1	do	13½/1	do	3	10	115	85	93	79 00	41 15	37 45	52.22	47.78	1.18	2.25	6.9
13.2	3,300	28/1	do	13½/1	do	3	12	115	85	91	80 00	40 21	39 39	50.44	49.56	1.14	2.25	6.9
12.8	3,000	30/1	do	13½/1	do	3	10	115	87	109	106 00	49 28	56 32	46.67	53.33	1.03	2.20	7.0
12.8	3,000	28/1	do	13½/1	do	3	6	115	87	82	74 00	37 13	36 47	50.29	49.71	1.11	2.20	7.0
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	277	152 00	75 09	76 51	49.44	50.56	1.82	3.69	3.9
13.0	3,300	30/1	do	10½/1	do	2	6	115	52	752	316 00	204 01	111 59	64.56	35.44	2.38	3.69	3.9

13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	601	311 00	163 03	147 57	52.43	47.57	1.93	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	554	330 00	150 18	179 42	45.55	54.45	1.68	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	407	229 00	110 25	118 35	48.22	51.78	1.78	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	742	323 00	201 19	121 41	62.33	37.67	2.30	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	605	272 00	164 08	107 52	60.35	39.65	2.22	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	470	160 00	127 31	32 29	79.69	20.31	2.94	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	541	315 00	146 47	168 13	46.6	53.4	1.72	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	455	322 00	123 26	198 34	38.34	61.66	1.41	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	397	206 00	107 43	98 17	52.29	47.71	1.93	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	488	326 00	132 24	193 36	40.61	59.39	1.50	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	576	324 00	156 16	167 44	48.23	51.77	1.78	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	535	301 00	145 09	155 51	48.22	51.78	1.78	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	400	162 00	108 31	53 29	66.99	33.01	2.47	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	607	280 00	164 41	115 19	58.81	41.19	2.17	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	655	313 00	177 42	135 18	56.77	43.23	2.09	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	367	159 00	99 34	59 26	62.62	37.38	2.31	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	542	317 00	147 03	169 57	46.39	53.61	1.71	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	280	149 00	75 58	73 02	50.99	49.01	1 88	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	272	130 00	73 47	56 13	56.76	43.24	2.09	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	259	125 00	70 16	54 44	56.22	43.78	2.07	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	743	323 00	201 35	121 25	62.41	37.59	2.30	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	707	328 00	191 49	136 11	58.48	41.52	2.16	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	559	322 00	151 40	170 20	47.1	52.9	1.74	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	203	160 00	55 04	104 56	34.42	65.58	1.27	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	752	299 00	204 01	94 59	68.23	31.77	2.52	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	506	284 00	137 17	146 43	48.34	51.66	1.78	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	633	314 00	171 44	142 16	54.69	45.31	2.02	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	532	322 00	144 20	177 40	44.82	55.18	1.65	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	683	322 00	185 18	136 42	57.55	42.45	2.12	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	2	6	115	52	339	161 00	91 58	69 02	57.12	42.88	2.11	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	1	6	115	52	569	262 30	154 22	108 08	58.81	41.19	2.17	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	1	6	115	52	282	123 00	71 32	51 28	58.15	41.85	2.29	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	1	6	115	52	448	180 00	121 32	58 28	67.52	32.48	2.49	3.69	3.9
13.0	3,330	30/1	.....do.........	10½/1	.....do.........	1	6	115	52	330	135 30	89 32	45 58	66.07	33.93	2.44	3.69	3.9
13.0	3,330	30/1	.....do.........	10½/1	.....do.........	1	6	115	52	392	180 30	106 21	74 09	58.92	41.08	2.17	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	1	6	115	52	540	222 00	146 30	75 30	65.99	34.01	2.43	3.69	3.9
13.0	3,300	30/1	.....do.........	10½/1	.....do.........	1	6	115	52	607	273 00	160 29	112 31	58.79	41.21	2.22	3.69	3.9
13.3	1,620	15/2	.....do.........	15/2	.....do.........	2	6	115	25	61	13 00	7 57	5 03	61.15	38.85	4.69	7.67	2.2
13.3	1,620	15/2	.....do.........	15/2	.....do.........	2	5	115	25	50	10 00	6 31	3 29	65.2	34.8	1.60	3.19	2.2
12.5	3,300	30/1	.....do.........	9/1	.....do.........	2	6	115	48	188	113 00	45 50	67 10	40.56	59.44	1.62	3.99	3.6
12.5	3,300	30/1	.....do.........	9/1	.....do.........	2	6	115	48	95	68 00	23 47	44 13	34.99	65.01	1.40	3.99	3.6
13.0	3,300	30/1	.....do.........	10½	.....do.........	1	6	115	60	127	55 00	39 46	15 14	72.29	27.71	2.31	3.19	3.9
14.0	3,900	30/1	.....do.........	13¼/1	.....do.........	1	6	115	60	132	70 00	41 19	28 41	59.03	40.97	1.89	3.19	4.3
14.0	3,900	30/1	.....do.........	10½/1	.....do.........	1	6	115	60	314	172 00	98 18	73 42	57.15	42.85	1.83	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do.........	1	6	115	60	76	33 00	23 47	9 13	72.09	27.91	2.30	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do.........	1	6	115	60	110	80 00	34 26	45 34	43.05	56.95	1.38	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do.........	1	6	115	60	90	58 00	28 10	29 50	48.57	51.43	1.98	3.69	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do.........	1	6	115	60	421	228 00	131 47	96 13	57.8	42.2	1.85	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do.........	1	6	115	60	306	192 00	95 47	96 13	49.89	50.11	1.59	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do.........	1	6	115	60	313	170 00	97 59	72 01	57.64	42.36	1.84	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do.........	1	6	115	60	157	73 30	49 09	24 21	66.87	33.13	2.14	3.19	4.3
14.0	3,900	30/1	.....do.........	13¼/1	.....do.........	1	6	115	60	108	54 00	33 49	20 11	62.61	37.39	2.00	3.19	4.3

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

LADIES' DRESS GOODS—Continued.

FEMALE WEAVERS—Continued.

Weight per yard.	Number of ends.	Warp.		Filling.		Number of shuttles.	Number of harness.	Picks per—		Number of yards woven.	Efficiency of weaver.							Piece price per yard.
		Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.			Minute.	Inch.		Total time of weaver (hours and minutes).	Actual time—		Per cent of total time—		Yards woven per hour—		
												Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
14.0	3,900	30/1	Worsted	13½/1	Woolen	1	6	115	60	141	64 00	44 08	19 52	68.97	31.03	2.20	3.19	4.3
14.0	3,900	30/1	do	13½/1	do	1	6	115	60	230	123 00	72 00	51 00	58.54	41.46	1.87	3.19	4.3
14.0	3,900	30/1	do	13½/1	do	1	6	115	60	92	62 30	28 48	33 42	46.08	53.92	1.47	3.19	4.3
14.0	3,900	30/1	do	13½/1	do	1	6	115	60	244	153 00	76 23	76 37	49.92	50.08	1.59	3.19	4.3
14.0	3,900	30/1	do	13½/1	do	1	6	115	60	193	124 00	60 25	63 35	48.73	51.27	1.56	3.19	4.3
14.0	3,900	30/1	do	13½/1	do	1	6	115	60	577	265 00	180 38	84 22	68.16	31.84	2.18	3.19	4.3
14.3	3,650	30/1	do	13½/1	do	2	6	90	60	250	137 00	100 00	37 00	72.99	27.01	1.82	2.50	6.1
12.8	3,300	30/1	do	13½/1	do	3	12	90	60	65	32 30	26 00	6 30	80.0	20.0	2.00	2.50	8.4
14.3	3,300	30/1	do	11½/1	do	2	6	90	60	469½	291 30	187 48	103 42	64.43	35.57	1.61	2.50	6.1
14.3	3,650	30/1	do	11½/1	do	2	6	90	60	393	225 00	157 12	67 48	69.87	30.13	1.75	2.50	6.1
14.3	3,650	30/1	do	11½/1	do	2	6	90	60	232	135 00	92 48	42 12	68.74	31.26	1.72	2.50	6.1
14.3	3,650	30/1	do	11½/1	do	2	6	90	60	269	203 00	107 36	95 24	53.0	47.0	1.33	2.50	6.1
14.3	3,650	30/1	do	11½/1	do	2	6	90	60	175	121 00	70 00	51 00	57.85	42.15	1.45	2.50	6.1
14.3	3,650	30/1	do	11½/1	do	2	6	90	60	233	137 30	93 12	44 18	67.78	32.22	1.69	2.50	6.1
13.0	3,300	30/1	do	10½/1	do	2	6	115	60	197	160 00	61 40	98 20	38.54	61.46	1.23	3.19	3.9
14.0	3,900	30/1	do	13½/1	do	2	6	115	60	185	85 00	57 55	27 05	68.13	31.87	2.18	3.19	4.3
17.2	3,900	30/1	do	10½/1	do	2	6	115	60	202	156 00	63 14	92 46	40.53	59.47	1.29	3.19	4.3
17.2	3,900	30/1	do	10½/1	do	2	6	115	60	172	126 00	53 51	72 09	42.74	57.26	1.37	3.19	4.3
14.0	3,900	30/1	do	13½/1	do	2	6	115	60	70	39 00	21 55	17 05	56.2	43.8	1.79	3.19	4.3
14.0	3,900	30/1	do	13½/1	do	2	6	115	60	244	134 00	45 05	88 55	33.64	66.36	1.03	3.19	4.3
14.0	3,900	30/1	do	13½/1	do	2	6	115	60	134	79 00	41 57	37 03	53.1	46.9	1.70	2.20	4.3
17.2	3,900	30/1	do	10½/1	do	2	6	115	60	209	138 00	65 26	72 34	47.42	52.58	1.51	3.19	4.3
12.7	4,150	30/1	do	10½/1	do	2	6	115	60	260	117 00	81 23	35 37	69.56	30.44	2.22	3.19	4.3
14.0	3,900	30/1	do	13½/1	do	2	6	115	60	204	119 00	63 52	55 08	53.67	46.33	1.71	3.19	4.3
14.0	3,900	30/1	do	13½/1	do	2	6	115	60	50	26 00	15 39	10 21	60.19	39.81	1.92	3.19	4.3
12.8	3,300	30/1	do	13½/1	do	3	6	115	60	82	51 00	25 40	25 20	50.32	49.68	1.61	3.19	6.9
14.0	3,900	30/1	do	13½/1	do	2	6	115	60	367	162 00	114 53	47 07	79.91	20.09	2.27	3.19	4.3

17.2	3,900	30/1	.....do..........	10½/1	.....do.........	2	6	115	60	196	109 00	61 21	47 39	56.28	43.72	1.80	3.19	4.3
14.0	3,900	30/1	.....do..........	13½/1	.....do.........	2	6	115	60	326	165 00	102 03	62 57	61.85	38.15	1.98	3.19	4.3
17.2	3,900	30/1	.....do..........	10½/1	.....do.........	2	6	115	60	112	54 00	35 04	18 56	64.24	35.76	2.07	3.19	4.3
14.0	3,900	30/1	.....do..........	13½/1	.....do.........	2	6	115	60	409	158 00	128 02	29 58	81.03	18.97	2.59	3.19	4.3
17.2	3,900	30/1	.....do..........	10½/1	.....do.........	2	6	115	60	40	21 00	12 31	8 29	59.6	40.4	1.90	3.19	4.3
12.7	4,150	30/1	.....do..........	14/1	.....do.........	2	6	115	60	78	35 00	24 25	10 35	69.76	30.24	2.23	3.19	4.3
14.0	3,900	30/1	.....do..........	13½/1	.....do.........	2	6	115	60	307	128 00	96 06	31 54	75.08	24.92	2.40	3.19	4.3
14.0	3,900	30/1	.....do..........	13½/1	.....do.........	2	6	115	60	332	165 00	103 56	61 04	62.99	37.01	2.01	3.19	4.3
14.0	3,900	30/1	.....do..........	13½/1	.....do.........	2	6	115	60	318	164 00	99 33	64 27	60.7	39.3	1.94	3.19	4.3
17.2	3,900	30/1	.....do..........	10½/1	.....do.........	2	6	115	60	118	52 00	36 56	15 04	71.03	28.97	2.22	3.19	4.3
24.9	1,920	1/1¾	Woolen........	1/1¾	.....do.........	3	8	90	26	157	40 50	27 13	13 37	66.7	33.3	3.84	5.77	4.89
15.4	2,304	1/3¼	.....do..........	1/3	.....do.........	3	6	90	26	125½	40 50	21 45	19 05	53.3	46.7	3.07	5.77	2.97
16.0	2,304	1/3¼	.....do..........	1/3	.....do.........	3	8	94	26	109	40 50	18 05	22 45	44.3	55.7	2.67	6.03	2.97
15.4	2,304	1/3¼	.....do..........	1/3¼	.....do.........	3	8	94	30	102½	40 50	19 38	21 12	48.1	51.9	2.51	5.22	3.39
15.4	2,304	1/3¼	.....do..........	1/3¼	.....do.........	3	8	90	30	177	81 40	35 24	46 16	43.3	56.7	4.33	5.00	3.39
15.4	2,304	1/3¼	.....do..........	1/3¼	.....do.........	3	8	90	30	102	40 50	20 24	20 26	50.0	50.0	2.50	5.00	3.39
15.4	2,304	1/3¼	.....do..........	1/3¼	.....do.........	3	8	96	30	291	81 40	54 34	27 06	66.8	33.2	7.13	5.33	3.07
14.5	2,304	1/3¼	.....do..........	1/3½	.....do.........	3	6	100	32	155½	40 50	29 52	10 58	73.1	26.9	3.81	5.21	5.39
17.0	3,600	1/30	Cotton.........	1/2	.....do.........	3	9	100	34	91½	39 20	18 40	20 40	47.5	52.5	2.33	4.90	3.49
15.7	2,340	1/3½	Woolen........	1/3½	.....do.........	3	6	100	36	78	40 50	16 51	23 59	41.3	58.7	1.91	4.63	6.14
15.7	2,340	1/3¼	.....do..........	1/3¼	.....do.........	3	6	96	36	83	40 50	18 41	22 09	45.8	54.2	2.03	4.44	6.14
16.0	2,640	1/3½	.....do..........	1/3¼	.....do.........	3	6	100	38	81½	39 50	18 35	21 15	46.7	53.3	2.29	4.39	3.90
13.7	3,300	1/24	Worsted.......	1/3½	.....do.........	3	9	110	44	113½	81 40	50 59	30 41	62.4	37.6	5.20	4.17	4.52
29.2	2,400	1/1¾	Woolen........	1/1¾	.....do.........	3	8	100	30	134	40 50	24 07	16 43	59.1	40.9	3.28	5.56	5.01
25.4	2,640	1/2¾	.....do..........	1/2¾	.....do.........	3	8	90	36	103½	40 50	24 50	16 00	60.8	39.2	2.53	4.17	6.76
25.4	2,640	1/2¾	.....do..........	1/2¾	.....do.........	3	8	90	36	134½	40 50	32 17	8 33	79.1	20.9	3.29	4.17	6.76
15.4	3,248	1/4½	.....do..........	1/4	.....do.........	3	6	100	36	100½	40 50	21 43	19 07	53.2	46.8	2.46	4.63	6.14
15.4	3,248	1/4½	.....do..........	1/4	.....do.........	3	6	100	36	100½	40 50	21 43	19 07	53.2	46.8	2.46	4.63	6.14
28.5	2,592	1/2	.....do..........	1/2	.....do.........	3	8	96	36	102	40 50	22 57	17 53	56.2	43.8	2.50	4.44	6.14
15.6	2,880	1/3⅞	.....do..........	1/3⅝	.....do.........	3	9	90	36	68½	40 50	16 26	24 24	40.2	59.8	1.68	4.17	4.01
22.0	2,592	1/2¾	.....do..........	1/3	.....do.........	3	8	90	44	97½	40 50	28 36	12 14	70.0	30.0	2.39	3.41	8.27
22.0	2,592	1/2¾	.....do..........	1/3	.....do.........	3	8	100	44	107½	40 50	28 23	12 27	69.5	30.5	2.63	3.79	7.64
22.0	2,592	1/2¾	.....do..........	1/3	.....do.........	3	8	100	44	82	40 50	21 39	19 11	53.0	47.0	2.01	3.79	7.64
22.0	2,592	1/2¾	.....do..........	1/3	.....do.........	3	8	92	44	92½	40 50	26 32	14 18	65.0	35.0	2.27	3.48	8.27
22.0	2,592	1/2¾	.....do..........	1/3	.....do.........	3	8	103	44	97	40 50	24 52	15 58	60.9	39.1	2.38	3.90	7.64
24.4	2,400	1/1⅜	.....do..........	1/1⅜	.....do.........	3	8	96	28	126½	38 50	22 08	16 42	57.0	43.0	3.26	5.71	4.64
25.3	2,208	1/1¾	.....do..........	1/1¾	.....do.........	3	8	100	24	81	32 30	11 40	20 50	35.9	64.1	2.49	6.94	3.88
25.3	2,208	1/1¾	.....do..........	1/1¾	.....do.........	3	8	100	24	172½	37 50	24 50	13 00	65.6	34.4	4.56	6.94	3.88
25.3	2,208	1/1¾	.....do..........	1/1¾	.....do.........	3	8	100	24	126	34 30	18 08	16 22	52.6	47.4	3.65	6.94	3.88
25.3	2,208	1/1¾	.....do..........	1/1¾	.....do.........	3	8	100	24	125½	33 00	18 04	14 56	54.7	45.3	3.80	6.94	3.88
28.2	2,080	1/1½	.....do..........	1/1½	.....do.........	3	8	96	24	165	37 50	24 45	13 05	65.4	34.6	4.36	6.67	3.88
25.3	2,208	1/1¾	.....do..........	1/1¾	.....do.........	3	8	100	24	112	33 00	16 08	16 52	48.9	51.1	3.40	6.94	3.88
28.0	2,160	1/1½	.....do..........	1/1½	.....do.........	3	8	96	24	123	31 30	18 27	13 03	55.6	44.4	3.71	6.67	3.88
28.0	2,160	1/1½	.....do..........	1/1½	.....do.........	3	8	98	24	122½	34 30	17 53	16 37	51.8	48.2	3.55	6.85	3.88
28.8	2,160	1/1½	.....do..........	1/1½	.....do.........	3	8	100	24	98½	40 50	14 11	26 39	34.7	65.3	2.41	6.94	3.88
23.7	2,304	1/2	.....do..........	1/2	.....do.........	3	8	100	26	154	40 50	24 01	16 49	58.8	41.2	3.77	6.41	4.26
23.7	2,304	1/2	.....do..........	1/2	.....do.........	3	8	100	26	168	40 50	26 13	14 37	64.2	35.8	4.11	6.41	4.26
23.7	2,304	1/2	.....do..........	1/2	.....do.........	3	8	100	26	114½	25 40	17 52	7 48	69.6	30.4	4.46	6.41	4.26

TABLE 80.—*Efficiency of weavers, with description of goods made*—Continued.

WOOLEN GOODS—Continued.

MISCELLANEOUS WOOLEN FABRICS.

MALE WEAVERS.

		Warp.		Filling.				Picks per—			Efficiency of weaver.							
												Actual time—		Per cent of total time—		Yards woven per hour—		
Weight per yard.	Number of ends.	Number of yarn. Ply and count or run.	Quality.	Number of yarn. Ply and count or run.	Quality.	Number of shuttles.	Number of harness.	Minute.	Inch.	Number of yards woven.	Total time of weaver (hours and minutes).	Loom was producing.	Lost in stoppages.	Loom was producing.	Lost in stoppages.	Of total time.	Of actual producing time.	Piece price per yard.
Ounces.											*H. m.*	*H. m.*	*H. m.*					*Cents.*
16.5	2,340	1/3	Woolen	1/4	Woolen	3	6	100	44	88	40 50	23 14	17 36	56.9	43.1	2.16	3.79	7.64
22.8	1,600	1/1⅝	do	1/1⅝	do	4	8	92	28	261½	58 00	47 45	10 15	82.3	17.7	4.51	5.48	4.96
22.8	1,600	1/1⅝	do	1/1⅝	do	4	8	92	28	274	58 00	50 02	7 58	86.8	13.2	4.72	5.48	4.96
22.8	1,600	1/1⅝	do	1/1⅝	do	4	8	90	28	83	58 00	44 55	13 05	77.4	22.6	4.25	5.36	4.96
22.4	1,600	1/1⅝	do	1/1⅝	do	4	8	90	28	277	58 00	51 43	6 17	87.4	12.6	4.78	5.36	4.96
22.4	1,600	1/1⅝	do	1/1⅝	do	4	8	95	28	69	58 00	46 05	11 55	79.5	20.5	4.38	5.65	4.96
22.0	1,600	1/1⅝	do	1/1⅝	do	4	8	95	28	79	58 00	40 34	17 26	70.1	29.9	1.36	5.65	4.96
22.2	1,576	1½	do	1½	do	5	16	94	24	101	24 50	15 28	9 22	62.3	37.7	4.07	6.53	5.85
20.56	1,828	2/3¼ 1/2⅛	do	2/3¼ 1/2⅛	do	5	8	90	25	60½	12 45	10 05	2 40	79.1	20.9	4.71	6.00	5.30
20.56	1,828	2/3¼ 1/2⅛	do	2/3¼ 1/2⅛	do	4	8	90	25	49½	13 30	10 03	3 27	80.4	19.6	4.64	6.00	5.30
20.56	1,828	2/3¼ 1/2⅛	do	2/3¼ 1/2⅛	do	4	8	90	25	228	42 35	38 00	4 35	89.24	10.76	5.35	6.00	5.30
20.56	1,828	2/3¼ 1/2⅛	do	2/3¼ 1/2⅛	do	4	8	90	25	277½	57 10	46 15	10 55	80.9	19.1	4.85	6.00	5.30
15.2	966	1/1¼	do	2/3	do	3	8	98	15	317¾	37 30	29 11	8 19	77.8	22.2	8.47	10.89	8.7
15.6	966	1/1¼	do	2/3	do	3	8	98	15	305¼	34 00	28 02	5 58	82.4	17.6	8.98	10.89	3.7
14.4	966	1/1¼	do	2/3	do	3	8	98	15	225½	37 30	20 43	16 47	55.2	44.8	6.01	10.89	3.7
15.4	966	1/1¼	do	2/3	do	3	8	98	15	166¾	22 30	15 19	7 11	68.0	32.0	7.41	10.89	3.7
13.4	1,728	2¾	do	2¾	do	2	4	110	28	139½	36 30	21 19	15 11	58.4	41.6	3.82	6.55	2.3
13.5	1,728	2¾	do	2¾	do	2	8	110	28	181½	47 30	27 41	19 49	58.3	41.7	3.82	6.55	2.3
14.0	1,474	1/2½	do	1/2½	do	3	8	98	24	174½	46 00	25 38	20 22	55.7	44.3	3.78	6.81	4.1
13.0	1,608	1/3	do	1/3	do	3	8	98	25	106½	19 30	16 18	3 12	83.6	16.4	5.46	6.53	4.3
12.6	2,032	1/3	do	1/3	do	3	8	98	26	52	14 30	8 17	6 13	57.1	42.9	3.59	6.28	4.4
12.4	1,742	1/3	do	1/3	do	3	8	98	26	156¾	35 30	24 57	10 33	70.3	29.7	4.42	6.28	4.4
7.1	1,368	1/5	do	1/5	do	2	4	100	24	193½	47 30	27 52	19 38	58.7	41.3	4.07	6.94	2.4
6.8	1,368	1/5	do	1/5	do	2	4	100	24	171½	45 00	24 42	20 18	54.9	45.1	3.81	6.94	2.2
6.8	1,368	1/5	do	1/5	do	2	4	100	24	157	37 00	20 33	16 27	55.5	44.5	4.24	7.64	2.2
7.4	1,368	1/4¾	do	1/4¾	do	2	4	110	24	271	58 00	36 47	21 13	63.4	36.6	4.07	7.63	2.2

22.3	1,144	1/1½	.....do.........	1/1½	.....do........	2	4	110	24	201½	47 30	26 23	21 07	55.5	44.5	4.54	7.58	3.5
7.3	1,368	1/4¾	.....do.........	1/4¾	.....do........	2	4	110	26	282½	50 30	40 04	10 26	79.3	20.7	5.59	7.05	2.2
6.9	1,368	1/5	.....do.........	1/5	.....do........	2	4	110	26	279¾	53 00	39 40	13 20	74.9	25.1	5.28	7.05	2.2
7.4	1,368	1/4¾	.....do.........	1/4¾	.....do........	2	4	110	26	194	47 30	27 31	19 59	57.9	42.1	4.08	7.05	2.2
7.0	1,368	1/5	.....do.........	1/5	.....do........	2	4	110	24	182	47 30	23 50	23 40	50.2	49.8	3.83	7.64	2.2
7.4	1,368	1/4½	.....do.........	1/4½	.....do........	2	4	110	26	228½	47 30	32 25	15 05	68.2	31.8	4.81	7.05	2.2
7.3	1,368	1/4½	.....do.........	1/4½	.....do........	2	4	100	26	181	47 30	28 14	19 16	59.4	40.6	3.81	6.41	2.4
15.0	2,400	1/4¼	.....do.........	1/3¾	.....do........	3	6	92	40	131	51 45	34 10	17 35	66.0	34.0	2.53	3.83	6.5
21.0	3,200	2/6¾	.....do.........	1/3¾	.....do........	3	9	92	46	108½	45 45	32 33	13 12	71.1	28.9	2.37	3.33	7.4
21.0	3,200	2/6¾	.....do.........	1/3¾	.....do........	3	9	92	46	132	46 00	39 36	6 24	86.1	13.9	2.87	3.33	7.4
21.0	3,200	2/6¾	.....do.........	1/3¾	.....do........	3	9	92	46	127	46 30	38 06	8 24	81.9	18.1	2.73	3.33	7.4

FEMALE WEAVERS.

15.0	2,400	1/4¼	Woolen........	1/3¾	Woolen.......	3	6	92	40	84	46 45	21 55	24 50	46.9	53.1	1.80	3.83	6.5
25.5	2,520	1/4	.....do.........	1/3¾	.....do........	3	8	92	44	152½	51 45	43 46	7 59	84.6	15.4	2.95	3.48	7.1
16.5	2,520	1/4	.....do.........	1/3¾	.....do........	3	8	92	44	147	51 45	42 11	9 34	81.5	18.5	2.84	3.48	7.1
21.0	3,200	2/6¾	.....do.........	1/3¾	.....do........	3	9	92	46	37	15 00	11 06	3 54	74.0	26.0	2.47	3.33	7.4
21.0	3,200	2/6¾	.....do.........	1/3¾	.....do........	3	9	92	46	76	30 30	22 48	7 42	74.8	25.2	2.49	3.33	7.4
16.6	2,520	1/3¼	.....do.........	1/3¼	.....do........	2	4	90	32	70	31 30	14 56	16 34	47.4	52.6	2.22	4.69	3.8
13.2	3,360	1/6	.....do.........	1/6	.....do........	2	3	110	44	98	42 00	23 31	18 29	56.0	44.0	2.33	4.17	3.3
13.2	3,360	1/6	.....do.........	1/6	.....do........	2	3	110	44	108	47 30	25 55	21 35	65.1	34.9	2.27	4.17	3.3
16.5	2,340	1/3	.....do.........	1/4	.....do........	3	6	96	44	112	40 50	30 48	10 02	75.4	24.6	2.74	3.64	7.64
16.5	2,340	1/3	.....do.........	1/4	.....do........	3	6	102	44	105	40 50	27 11	13 39	66.6	33.4	2.57	3.86	7.64
21.0	1,188	1/1⅞	.....do.........	1/1½	.....do........	5	12	95	27	107	36 40	18 15	18 25	49.8	50.2	2.92	5.86	4.86
22.5	1,600	1/1⅝	.....do.........	1/1⅛	.....do........	4	8	92	28	238½	58 00	44 17	13 43	76.3	23.7	4.11	5.39	4.96
22.4	1,660	1/1⅝	.....do.........	1/1⅛	.....do........	4	8	92	28	250½	58 00	42 05	15 55	72.6	27.4	4.32	5.48	4.96
20.55	884 944	2/3¼ 1/2¼	.....do.........	2/3¼ 1/2⅛	.....do........	5	8	90	25	59½	12 45	9 55	2 50	77.8	22.2	4.67	6.00	5.89
19.8	2,800	1/3¾	.....do.........	1/3½	.....do........	3	8	92	46	147½	51 45	44 15	7 30	85.5	14.5	2.85	3.33	7.4
15.4	966	1/1¼	.....do.........	2/3	.....do........	3	8	98	15	87¾	25 30	8 04	17 26	31.6	68.4	3.44	10.89	3.7
16.2	1,188	1/2¼	.....do.........	1/1¼	.....do........	3	8	94	20	80	15 30	10 13	5 17	65.9	34.1	5.16	7.83	3.7
15.2	966	1/1¼	.....do.........	2/3	.....do........	3	8	98	20	76½	15 00	9 22	5 38	62.5	37.5	4.70	8.17	3.7
13.6	896	1/1⅞	.....do.........	1/1¾	.....do........	5	8	94	20	267	50 00	34 05	15 55	68.2	31.8	5.34	7.83	3.5
13.6	896	1/1⅜	.....do.........	1/1¾	.....do........	5	8	94	20	277½	50 00	35 26	14 34	70.9	29.1	5.55	7.83	3.5
13.6	896	1/1⅝	.....do.........	1/1¾	.....do........	5	8	96	20	293	50 00	36 38	13 22	73.3	26.7	5.86	8.00	3.5
13.6	896	1/1⅜	.....do.........	1/1¾	.....do........	5	8	96	20	197	40 00	24 38	15 22	61.6	38.4	4.93	8.00	3.5
21.0	1,200	1/1 9/16	.....do.........	1/1 9/16	.....do........	4	8	98	20	81½	15 20	9 59	5 21	65.1	34.9	5.32	8.17	5.0
14.8	1,300	1/2	.....do.........	1/3¼	.....do........	4	8	97	20	234½	39 45	28 59	10 46	72.9	27.1	5.89	8.08	4.75
14.4	1,377	1/2	.....do.........	1/2	.....do........	4	8	97	20	105½	19 00	13 01	5 59	68.5	31.5	5.54	8.08	4.75
14.1	2,160	1/3⅜	.....do.........	1/3⅜	.....do........	4	16	97	20	74½	11 55	9 13	2 42	75.6	24.4	6.25	8.08	6.75
14.1	1,296	1/2	.....do.........	1/2	.....do........	4	8	97	20	128¼	25 10	15 54	9 16	63.2	36.8	5.10	8.08	4.75
15.2	1,656	1/2	.....do.........	1/3	.....do........	3	8	98	34	156	54 10	32 28	21 42	59.9	40.1	2.88	4.80	5.3
12.0	2,160	1/4¼	.....do.........	1/4¼	.....do........	5	8	96	34	75	18 00	15 56	2 04	88.6	11.4	4.17	4.71	6.6
13.3	1,680	2/4¼	.....do.........	2/4¼	.....do........	4	8	96	36	138	40 00	31 03	8 57	77.6	22.4	3.45	4.44	6.3
12.0	2,160	1/4¼	.....do.........	1/4¼	.....do........	5	8	98	36	67	19 00	14 46	4 14	77.7	22.3	3.53	4.54	6.3
12.0	2,160	1/4¼	.....do.........	1/4¼	.....do........	5	8	98	36	130½	44 00	28 46	15 14	65.4	34.6	2.97	4.54	6.3
12.0	2,160	1/4¼	.....do.........	1/4¼	.....do........	5	8	98	36	142	47 00	31 18	15 42	66.6	33.4	3.02	4.54	6.3
12.5	2,160	1/4¼	.....do.........	1/4¼	.....do........	5	8	96	36	109	40 00	24 32	15 28	61.3	38.7	2.73	4.44	6.3

SYSTEM OF INQUIRY.

Copies of the schedules used are herewith submitted, so that the true nature of the investigation may be further understood.

[CONFIDENTIAL.]

Identification No. ——.

THE TARIFF BOARD.

WOOLEN AND WORSTED INDUSTRY.

Name of representative, ...

Name of agent, ...

WEAVING DEPARTMENT.

Persons employed.			Looms.							Rates, earnings, and time.		
Weavers.	Sex.	Country of birth.	Kind of loom (plain, full, fancy, etc.).	Number attended.	Single or double beam work.	Number of shuttles.	Number of harness.	Picks per minute.	Place and date of make.	Piece price per yard.	Total amount earned.	Total hours worked.
Loom No.												

Description of goods made (unfinished).

Picks per inch.	Inches in width.	Yards made.	Number of ends.	Weight (ounces) per yard.	Warp.		Filling.		Trade name of goods.
					Ply and count.	Quality.	Ply and count.	Quality.	

WOOL-SCOURING DEPARTMENT.

Persons employed.			Machines.			
Occupation.	Number.	Country of birth.	Name of.	Place and date of make.	Number of machines.	Number of bowls.

Time and earnings.		Production.		Grade of wool used.
Total hours worked.	Total amount earned.	Pounds of greasy wool fed to machine.	Pounds of scoured wool produced.	

CARDING DEPARTMENT.

Persons employed.						Machine.			
Occupation.	Country of birth.	Males.		Females.		Name of.	Place and date of make.	Number of carding machines.	Width of card.
		16 and over.	Under 16.	16 and over.	Under 16.				

Time and earnings.		Production.		Grade of stock used.
Total hours worked on product.	Total amount earned.	Pounds produced.		
		Per set.	Total.	

DRAWING DEPARTMENT.

Persons employed.						Drawing frames.		
Occupation.	Country of birth.	Sex and age.				Name of.	Number of.	Place and date of make.
		Males.		Females.				
		16 and over.	Under 16.	16 and over.	Under 16.			

Production, time, and earnings.			Description of roving.
Hours worked.	Total amount earned.	Pounds produced.	

COMBING OR TOP-MAKING DEPARTMENT.

Persons employed.				Machines.		
Occupation.	Country of birth.	Sex.		Name of machine.	Place and date of make.	Number of machines.
		Males.	Females.			

Time and earnings.		Production.				Description of product.
Total hours worked on product.	Total amount earned.	Total pounds fed to machine.	Pounds produced.			
			Tops.	Noils.	Waste.	

FRAME-SPINNING DEPARTMENT.

Persons employed.						Number of frames.	Number of spindles.	Frames per spinner.	Spindles per spinner.	Place and date of make of frames.
Occupation.	Country of birth.	Males.		Females.						
		16 years and over.	Under 16 years.	16 years and over.	Under 16 years.					

Time, production, and earnings.				Average twists per inch.	Description of yarn.
Hours worked.	Total amount earned.	Pounds produced.	Number of yarn.		

MULE SPINNING DEPARTMENT: CARDED WOOL.

Occupation.	Persons employed (sex).				Country of birth.	Number of spindles.		Machine (place and date of make).
	Males.		Females.					
	16 years and over	Under 16 years.	16 years and over.	Under 16 years.		Per mule.	Per spinner.	

Time and earnings.		Production.		Description of yarn.
Hours worked.	Wages earned.	Pounds produced.	Number of yarn.	

MULE SPINNING DEPARTMENT: WORSTED.

Occupation.	Persons employed (sex).				Country of birth.	Number of spindles.		Machine (date and place of make).
	Males.		Females.					
	16 years and over.	Under 16 years.	16 years and over.	Under 16 years.		Per mule.	Per spinner.	

Time and earnings.		Production.		Average twists per inch.	Description of yarn.
Hours worked.	Wages earned.	Pounds produced.	Number of yarn.		

WOOL SHRINKAGE.

Wool in the grease.

Date.	Lot No.	Place of origin.	Market grade.	Price per pound.	Number of pounds.

WOOL SHRINKAGE—Continued.

Scoured wool.

Total pounds.	Per cent.		Tops produced.		Noils produced.		Comb waste.		Card waste.	
	Product.	Loss.	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.

SUPPLEMENTARY SCHEDULE.

Trade name of goods.	Total yardage produced.	Total yards perfect goods.	Total yards imperfect goods.	Yardage yielding less than regular selling price.			Waste. (Sold at pound rates.)
				10 per cent.	20 per cent.	30 per cent.	

Identification No. ....

THE TARIFF BOARD,

WASHINGTON, D. C.

THE WOOLEN AND WORSTED INDUSTRY.

Pay roll No. or name of employee ......
Sex of employee (male or female) ......
Under or over 16 years of age ......
Specific occupation of employee ......
Name of department of mill where working ......
Years or months employed in this mill ......
Years or months employed in this occupation ......
Years or months employed in the woolen industry ......
Name of former industry and occupation before beginning work in woolen mills ......
Country of birth of employee ......

LOOM CARD.

PAY ROLL No. ....
LOOM No. ....
Weaver Male Female
Runs.................... Looms...............
Beams......... Shuttles....... Harness.......
Speed................ picks per min.
Weaver's piece price per yard..................
Hours—1st day..............................
2d day..............................
3d day..............................
4th day.............................
5th day.............................
6th day.............................
Total..............................
Picks per inch.......... Loom width...........
Total yards woven..............................
Ends.............. Weight per yard...........
Warp...
....
Filling..
....
Trade name of goods............................
....
Style No.............. Piece No. ....

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WOOL AND MANUFACTURES OF WOOL

MESSAGE OF THE
PRESIDENT OF THE UNITED STATES
TRANSMITTING A
REPORT OF THE TARIFF BOARD ON
SCHEDULE K OF THE TARIFF LAW

GENERAL INDEX

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